EFFECTIVENESS OF CRYOTHERAPY FOR 15 SECONDS VS 30 SECONDS ON PAIN DURING VENEPUNCTURE AMONG CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI.

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OCTOBER 2017

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ABSTRACT

Title: Effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward, Government Rajaji Hospital, Madurai. **Objectives:** Evaluate the effectiveness of cryotherapy on pain during venepuncture among children in experimental group I and experimental group II in paediatric ward, Government Rajaji Hospital, Madurai. Associate the level of pain during venepuncture among children with their selected socio demographic variables and clinical variables. **Hypotheses:** There is a significant difference in the post test level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward, Government Rajaji Hospital, Madurai. There is a significant association between the level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward with their selected socio-demographic variables and clinical variables. **Conceptual framework:** based on Modified Wiedenbach's helping art theory. **Methodology:** Quantitative approach-True experimental post test only design. Sample size was 60, among these 30 samples for experimental group I and 30 samples for experimental group II selected by consecutive sampling technique in paediatric ward at Government Rajaji Hospital, Madurai. Cryotherapy was applied for 15 seconds to experimental group I and cryotherapy was applied for 30 seconds to experimental group II before venepuncture. Post test level of pain during venepuncture was assessed using Wong Baker's pain assessment scale. **Findings:** The study suggested that post test level of pain during venepuncture among children in experimental group I and experimental group II mean difference was 2.17. The unpaired't' test value showed statistically significant difference $t=7.83$ $p<0.001$. **Conclusion:** The study statistically proved that the cryotherapy for 30 seconds reduces the level of pain than cryotherapy for 15 seconds among children and it is a cost effective non- pharmacological technique to reduce the level of pain during venepuncture among children.

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Introduction

CHAPTER I

INTRODUCTION

"The aim of the wise is not to secure pleasure but to avoid pain"

-Aristotle

Children are very precious beings. They are innocent, transparent and open to life fully. All the honest truth-telling there is in the world is done by children. While we try to teach our children all about life, our children teach us what life is all about how to find the wonders in everyday life; how to be thrilled by simple stories of the elderly uncle next door; how to experience heart-felt laughter at silly antics; how to be joyful again. The Children of today will be adults of tomorrow.

The early years of a child's life are very important for his or her health and development. Healthy development means that children of all abilities, including those with special health care needs, are able to grow up where their social, emotional and educational needs are met. Having a safe and loving home and spending time with family—playing, singing, reading, and talking—are very important. Proper nutrition, exercise, and sleep also can make a big difference.

Worldwide, children represent a higher proportion of the population, with children younger than age 15 accounting over 27% (1.9 billion) of the world's 7.5 billion population**.** Children are the major receivers of health care. In India about 35% of total population are children below 15 years of age. Children fall in the most important age group in all societies. Illness and hospitalization expose children to

unfamiliar and unpleasant feelings. Children undergo a wide range of intervention in hospitals, many of which can be stress full, traumatic and painful. In India there are 1.21 billion people constitutes as the second most populous country in the world, while children represents 39% of total population of the country. In Tamil Nadu there are 7,423,832 children population. In Madurai, there are 100,324 children out of 1,017,865 population.

Three and six-year-old children are often called preschoolers. Preschool children learn by experiencing and by doing. Preschoolers can express their needs since they have greater command of language. Fears often develop during the preschool years. Common fears include new places and experiences and separation from parents and other important people. Because of their developing imaginations and rich fantasy lives, they may have trouble telling fantasy from reality. Preschoolers need clear and simple rules so that they know the boundaries of acceptable behavior.

Pre-school children are able to communicate verbally the pain they experience. They can indicate the location and intensity of the pain. Some children try to postpone the painful event, and it becomes necessary for the nurse to limit the number of procrastinations children use. Children's memories of painful experiences can have long-term consequences for their reaction to later painful events and their acceptance of later health care interventions. Children's memory for pain, emphasizing implications for clinical practice. At times, children may refuse to admit that they are having pain to avoid the injection.

Illness and hospitalisation expose children to unfamiliar and unpleasant feelings. Since children have little experience with and comprehension of the pain and disease process, such negative feelings cause intimidation and anxiety for them (Baucher et al 1994). Although the degree of pain during common medical procedures is less than during severe illnesses and injuries, millions of children experience these procedures which cause considerable distress.

Disease and hospitalization can be the first crisis that a child encounters. Due to the fact that tension causes a change in health condition and environmental routine, and that children have fewer compatibility mechanisms for elevating tensions, this age group is more vulnerable to crisis arising from disease and hospitalization. Children's way of reacting to this crisis depends on the age at which the previous experience of disease and isolation took place, hospitalization, compatibility skills, gravity of the disease, and support systems present.

The percentage of children being hospitalized and their problems have undergone considerable change in the last two decades. Over two-thirds of all babies (about 71 percent) are born and discharged from the hospital without any clinical problems or complicating diagnoses. Respiratory conditions are the most common reason for hospitalizations among children (paediatric illness). Pneumonia, asthma, and acute bronchitis account for 1 in 5 hospitalizations for paediatric illness. Asthma and pneumonia remain among the top 10 reasons for hospitalizations among all paediatric age groups. Infectious disease is another common reason for hospitalizations for paediatric illness throughout childhood. Infections account for 6 of the top 10 diagnoses for infants, 6 of the top 10 diagnoses for 1- to 2-year olds, and 5 of the top 10 diagnoses

for 3- to 5-year olds. Asthma is the most common reason for hospitalizations among 3- to 5-year olds and 6- to 12-year olds. About 7 percent, or 1 in 14 paediatric hospital stays are for mental disorders. Affective disorders (primarily depression) are one of the top 10 reasons for hospitalization among children with illness, accounting for over 74,000 hospital stays in 2000. By age 13 to 17, affective disorders are the most common cause of hospitalization for children for non-neonatal or non-pregnancy related conditions. For 13- to 17-year olds, injuries, including leg injuries, medication poisonings and head injuries, are among the top reasons for hospital stays. Research has shown that previous experience and familiarity with medical procedures do not reduce fear in children. In fact, a previous experience may be a cause of substituting a known or unknown fear. The state of the illness can cause an experience of invasive and traumatic procedures. These factors can cause adverse emotional effects on children resulting from hospitalization. Many of these children are sick newborns, injured children and children with current disabilities that have stayed alive because of the development of technology and have at present become incapacitated or have been suffering from a chronic illness and need long hospitalization periods.

Children requiring needle sticks (injections, intravenous catheters, blood sampling) view this procedure as frightening and a significant source of pain (Kharasch 2003).The results of one study conducted on children who were inpatients in a tertiary care hospital (excluding neonatal ICU and psychiatry patients) and one parent per child, indicated that 49% of the 200 subjects (102 parent interviews for children less than 5 years of age and 98 child interviews for children 5 years of age and older) reported clinically significant levels of severe pain. Approximately 21% of these subjects had clinically significant levels of usual pain during the past 24 hours; the causes of pain

were variable from such sources as disease, surgery, and intravenous (IV) lines (Cummings et al 1996).

Peripheral venous cannulation is indicated for short-term use in many clinical situations. These mainly include administration of: » IV fluids; » Drugs; » Blood and blood products; » Dyes and contrast media. Common sites of insertion are the cephalic or basilic veins of the lower arm; or the dorsal venous arch located on the back of the hand (Lavery, 2007) (Fig 1). The superficial veins of the lower limbs may also be cannulated, but these tend to be avoided as they are associated with a higher risk of infection and embolism (RCN, 2010). Several factors must be considered when selecting a site for peripheral venous cannulation. The risk of infection or phlebitis can be minimised by considering the following: » The general condition of the veins; » Avoidance of points of flexion; » The type of drug to be administered (determined by the osmolality or pH); » Speed of drug delivery; » Duration of intended therapy; » The size of the cannula versus the size of the vein.

Hospitalization of children can bring about negative changes and mental and spiritual pressure on children and their parents, and can endanger their health. Concerns regarding the gravity of the illness of the child, hospital environment, mutual relationship, personal problems of the parents and emotional matters.

The International Association for the study of Pain (IASP) defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage. The American pain society created the phrase "pain: as the fifth vital signs" to increase awareness of pain assessment among the health care professionals especially nurses. The rationale is that if pain were assessed the seriousness as other vital signs, it

would more likely to be treated perfectly. The pain response is individual (subjective) and is learned through social learning and experience, moreover the experience of pain is quite complex.

Almost every tissue found in the human body contains pain receptors, called nociceptors. It has been estimated that the skin may contain as many as 1,300 nociceptors in one square inch. These nociceptors respond to thermal, chemical, and mechanical stimuli through a-delta, C, and a-beta fibres. The a-delta receptors contain small, myelinated fibres that rapidly transmit acute, sharp pain signals from the peripheral nerves to the spinal cord. C receptors have larger, unmyelinated fibres that transmit pain at a slower rate and are commonly associated with long lasting, burning pain sensation.

Pain is one of the most common complains made by patients during their time in hospital, and one of the important cause of fear in patients who are to undergo a procedure during hospitalization. Pain is a complex, multidimensional experience. For many people, it is a major problem that causes suffering and reduces quality of life. Pain is one of the major reasons that people seek health care. It is applicable for all including the adults.

Silkman (2008) described the multidimensional complexity of pain in physiological, sensory, behavioral, socio-cultural, cognitive and affective. The physiological dimension includes; the patient perception of pain and body's reaction to the stimulus. The sensory dimension concerns the quality of the pain and how severe the pain is perceived to be. This dimension includes: patient perception of pain's location, intensity and quality. The behavioral dimension refers to the verbal and

nonverbal behavioral that the patient response to the pain. The social-cultural dimension concerns the influence of the social context and cultural background on the patient pain's experience. The cognitive dimension concern 'beliefs, attitude, intention and motivation related to pain and its management. The affective dimension concerns with feeling and emotion related to pain experience.

Children's most common pain experiences are medical pain; primarily needle pain (e.g., venepunctures, immunizations). Children experience needle pain soon after birth, beginning with heel pricks and immunization and continuing throughout childhood with additional immunizations and blood tests.

Children remember pain, and may avoid future medical care because of painful experiences in a hospital or clinic. Untreated pain suffered pain early in life can have a profound and long lasting effects on social and physical development, and can cause permanent changes in the nervous system that will affect future pain experience and development.

Children cry, are scared and refuse to collaborate, whereas parents are often worried and unable to provide any support. Parents and nurses consistently indicate that many children do indeed fear the needle shot. This can be manifested by the child's distress behaviours such as aggressiveness, intense cry, withdrawal or regressive behaviour, physical resistance by pushing painful stimulus away, guarding the painful area, clinging to parents, requesting for emotional support, refusal to cooperate and inability to sleep. As a result it can significantly have a negative sequelae on the life of children, in which the developing brain neuronal architecture may be permanently altered by repeated noxious stimuli.

Intrusive procedures such as venepuncture are well understood as stressful events for children (Caty et al 1997). Venepuncture in the paediatric population can be one of the most distressing events associated with medical encounters (Rogers and Lynne 2004). For example, in one study data were obtained by means of a projective technique and guided interview format using a set of black and white line drawings that depicted the three phases of venepuncture. These researchers found two thirds of the children (66.6% of 45 children) considered the anticipatory phase of venepuncture as a threat. Slightly more than half the children also appraised the impact phase as a threat (Caty et al 1997). And in another study 82.1% of subjects expressed negative emotions such as nervous, scared, terrible, not good, angry and sad (Hodgins and Lander 1997). Furthermore, in a sample of 150 hospitalised children between the ages of 3 and 18 years, the three most commonly reported painful procedures were needle procedures, intravenous insertion, venepuncture and injections (Lewkowski et al 2003).

Venepuncture is the one of the most commonly experienced procedures by hospitalized children; millions of children experience these procedures which cause considerable distress. Children requiring needle sticks (intramuscular injections, intravenous catheters, blood sampling) view this procedure as frightening and a significant source of pain.

Intravenous cannulation is the most frequently used procedure in the wards, casualty and in preoperative preparation. It is a very painful and stressful procedure, thus emotions may become exaggerated at times, triggering vasovagal reaction. Patient's anxiety and fears concerning needles are real and may even prevent them from seeking health care.

The role and responsibility of health care workers, particularly nurses, includes helping children through such procedures. The nurse caring for a child during a procedure is presented with a double challenge: helping the child and parents through the procedure effectively, and ensuring that the procedure is done as efficiently as possible (Breman 1994). Total pain relief during procedures should be the goal of methods to reduce the pain accompanying invasive procedures such as venepuncture, to help improve patient care and increase patient satisfaction.

Non-pharmacological techniques to reduce venepuncture related pain and are generally less costly and can be performed independently by nurses (Jacobson 1999). A number of non-pharmacological techniques, such as distraction, relaxation, guided imagery, and cutaneous stimulation provide coping strategies that may help reduce pain perception, make pain more tolerable, decrease anxiety and enhance the effectiveness of analgesics (Wong and Hockenberry 2003). Among these measures, the proper use of cutaneous stimulation can reduce pain perception (Crisp and Taylor 2005). Cutaneous stimulation is performed by several methods such as simple rhythmic rubbing, use of pressure or electric vibrators, massage with hand and application of heat or cold at the site before injection, which has been significantly valued in various studies (Wong and Hockenberry 2003).

Cold and heat application relieve pain and promote healing (Crisp and Taylor 2005). An application of cold is considered to slow the ability of pain fibres to transmit pain impulses (Ball and Bindler 2003). Although there is not any agreement on the pain transmission theory, Gate Control Theory is widely supported by researchers. According to Gate Control Theory, researchers have viewed pain as a multidimensional

construct leading to improvements and advancement of many interventions (Abott and Fawler 1995). The results of one study indicated the reduction of pain at the injection area after applying skin refrigerant/anesthetic (Maikler 1991), whilst according to another study, refrigerant local anesthetic spray reduced injection pain during routine diphtheria, pertussis, and tetanus (DPT) immunisation (Abott and Fawler 1995).

Considering the anxiety due to painful procedures such as venepuncture, as well as the unpleasant feelings parents and children get, it was hypothesised that application of local refrigeration to the skin would decrease the pain related responses associated with venepuncture.

Inadequate treatment of both acute and chronic pain is widespread throughout medical surgical wards, intensive care units, emergency departments and in general practice. This neglect is extended to all age groups, from neonates to the elderly. In September 2008, the World Health Organization estimated that nearly eighty percentage of the population in the world has either insufficient or no access to treatment for severe and moderate pain. Every year millions of people around the world, suffer from pain without treatment. Reasons for proper pain management failure include cultural, religious, societal, and political attitudes, including acceptance of torture(Taylor et al.,2008).

In hospital practice intravascular lines are used for various purposes like recording pressure and to administer drugs, fluids and to draw out blood. Pain inflicted by the insertion of cannula into the skin is a significant concern. Effort should be made to assess and manage acute pain. As, by doing so, nurses can reduce pain, increase patient comfort, satisfaction and improve patient outcomes (Jacobson, 1999).

Research evidence shows that cutaneous stimulation is an independent nursing intervention to minimize patients pain. Gate control theory clearly explains the effect of cutaneous stimulation. Cutaneous stimulation modalities can be clubbed with acupressure to increase its effectiveness in pain management. Research studies have highlighted the fact that cryotherapy is equally effective and important in alleviating or minimizing pain as a cutaneous stimulation technique (Sabitha P.B, et al.,2008).

The analgesic effects of cutaneous stimulation (pressure, massage, vibration, heat, cold) are thought to be caused by activation of large A-beta fibers and inhibition of smaller A-delta and C fibers, thus closing the gate to pain impulses. The exact mechanism by which this gating occurs has not been established, but it may be through endorphin release (Ruth,2009).

Cryotherapy relaxes muscle and muscle contractility, vasoconstriction decreases capillary permeability, decreases blood flow, slows cellular metabolism, decreases pain by slowing nerve conduction rate and blocking nerve impulses, decreases edema by reducing capillary permeability (Barbara kozier, 2006).

Cryotherapy also known as ice therapy is one of the most widely used treatment modalities used for pain. It is cheap, easy to use and requires little time to prepare. Ice is a therapeutic agent used in medicine as an integral part of injury treatment and rehabilitation. The use of ice pack is widespread because of their effectiveness, convenience, low cost and ease of transportation. Ice is believed to help control pain by inducing local anesthesia around the treatment area and also shown that it decreases edema, nerve conduction, cellular metabolism, and local blood flow.

There are many theories and it is possible that a number of the proposed mechanisms in combination can cause pain reduction. Some of the possible mechanism include:

1. Decreased nerve transmission in pain fibres.
2. Cold reduces the activity of free nerve endings.
3. Cold raise the pain threshold.
4. Cold causes a release of endorphins

The investigator herself during her clinical experience and daily life has come cross many children who were screaming due to pain during venepuncture. Very few studies have been conducted on the cryotherapy prior to the venepuncturing for assessing the pain responses among the children. This experience motivated the investigator to undertake the study to assess the pain responses among children during venepuncture.

1.1 Need for the study

Paediatric nursing is traditionally involved in professional and competent care of the children. One of the most dramatic advances in paediatric nursing is the traumatic care of children to the child of any age, a visit to the hospital can be at best a frightening event and at worst a traumatizing experience. The children imagine hospital as a place where they get injections. Injections of any kind can hurt when they happen to see a nurse or a doctor with an injection syringe. The emotional disturbance and fear knows no boundary in children who feel threatened by painful procedures.

When surveyed 21% to 90% of adults expressed some about the pain associated with the needle based procedures. Up to 90% of young children shows serious distress

during vaccination. This general level of anxiety can be severe, and is termed as injection phobia. This phobia can result in syncopal attacks with significant clinical impact (Yael et al.,2003).

Research Studies reveals that, among nursing diagnosis pain constantly ranks the highest position. Nurses often have the closest contact with patients on a daily basis. They are the health care providers most directly responsible for the overall management of pain. Nurses play a pivotal role in pain assessment, pain intervention, monitoring the effects of treatment and communication of information about pain management (Keela A.Herr, et al.,1992).

The pain related to minor invasive nursing procedures can be dealt with non-pharmacological measures than pharmacological measure. The pharmacologic measures like local anesthetic spray, eutectic mixture of local anesthetic (EMLA) have long term effects, which is undesirable. Also its cost effect should be kept in mind, as these simple but essential procedures are repeated for the same person for many times. Hence non-pharmacological measures can be the choice for relieving or preventing such minor invasive pain, like venepuncture pain (Saju T.P,2009).

A study conducted to find out the effects of two non-pharmacological pain management measures for IV injection pain recommended to use cold therapy and distraction to decrease pain intensity. The first group received local cold therapy, the second group received distraction and the control group received only routine care. The results shows that average pain intensity in local cold therapy, distraction and control groups was 26.3, 34.3 and 83.3 respectively. The findings indicate that pain intensity was significantly higher in the non-interventional group than the interventional groups.

This study supports the efficacy of non-pharmacologic pain management methods (Hasanpour M et.al.,2005).

Assessing and managing the children with pain is a daily responsiblities for nurses. They are the responsible persons who not only implement the doctor's orders, but also the ones who work closely with patients to facilitate healing processes. So nurse can use simple interventions to relieve procedural pain in children and promote comfort for them.

At the institution of child health and research centre, Government Rajaji Hospital, Madurai, an average of 900-1000 children irrespective of age are admitted in the paediatric medical and surgical ward. In that approximately most of the children who got admitted had venepuncture. The present study proposes to determine the effectiveness of cryotherapy for different duration on pain during venepuncture among children. Therefore from the above findings the researcher felt that it is a need to conduct the present study to evaluate the effectiveness of cryotherapy for various durations prior to venepuncuture in pain responses among children.

1.2 Statement of problem

A study to evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward, Government Rajaji Hospital, Madurai.

1.3 Objectives of the study

- To evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in experimental group I and

experimental group II in paediatric ward Government Rajaji Hospital, Madurai.

- To associate the level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward with their selected socio demographic variables and clinical variables.

1.4 Hypotheses

H_1: There is a significant difference in the post test level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward, Government Rajaji Hospital, Madurai.

H_2: There is a significant association between the level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward with their selected socio-demographic variables and clinical variables.

1.5 Operational definitions

Effectiveness:

In this study, Effectiveness means a change in the experience of pain during venepuncture after cryotherapy for two different durations i.e. 15seconds for experimental group I and 30 seconds for experimental group II and the level of pain is elicited through Wong Baker Pain Assessment Scale.

Cryotherapy:

In this study, Cryotherapy refers to the topical application of cold by using ice pack at 0 degree at the venepuncture site for a period of 15 seconds for experimental group I and 30 seconds for experimental group II prior to venepuncture in order to inhibit pain transmission.

Pain during Venepuncture:

In this study, pain during venepuncture refers to the unpleasant experience or a feeling of discomfort associated with damaging stimuli of puncturing the vein to withdraw blood sample or for an intravenous cannulation which is assessed using the Wong Baker's pain assessment scale.

Children:

In this study, children refer to those within the age group of 3-6 years who are admitted in paediatric ward and who are adviced for venepuncture either to draw blood sample or for IV cannulation.

1.6 Assumptions:

All children during venepuncture will experience a different level of pain. Pain experience varies from individual to individual.

1.7 Delimitation:

The study is limited to,

- Age of the children limited to 3-6 years.
- Children who are admitted in paediatric ward.
- Data collection period is limited to 4-6 weeks.

1.8 Projected outcome:

The cryotherapy will reduce the level of pain during venepuncture among children.

Review of Literature

CHAPTER II

REVIEW OF LITERATURE

Review of literature is a key set up in research process, it refers to an extensive, exhaustive and systematic examination of publication relevant to the research project. Nursing research may be considered a continued process in which knowledge gained from earlier studies in integral part of research in general one of the most satisfying aspects of the review of literature is the contribution makes to the knowledge before delivering into a new knowledge in nursing practice.

This chapter deals with two parts:

Section- A: Review of literature related to studies

Section- B: Conceptual framework

This chapter attempts to present a review of studies done, methodology adopted and conclusion attained by earlier investigators which helps in the study. The sources are internet search, textbook, published journal, editorials published and unpublished thesis.

Section- A

In this chapter, the researcher presents the review of the literature under the following headings

- **Literature review related to venepuncture in children.**
- **Literature review related to non-pharmacological interventions for pain during venepuncture.**
- **Literature review related to pain response on ice application prior to venepuncture.**

SECTION A

2.1 Literature review related to venepuncture in children.

Griffith RJ, Jordan V, Herd D, Reed PW, Dalziel SR. (2012) conducted a experimental study to determine effects of vapocoolants on pain associated with intravenous cannulation in children. All blinded and unblinded randomized controlled trials (RTCs) was included for comparing any vapocoolant with placebo or control to reduce pain during intravenous cannulation in adults and children. The result showed that use of vapocoolants resulted in a reduction in pain scores as measured by a linear 100 mm visual analogue scale

Bastami M, Azadi A, Mayel M (2012) conducted an expermental study to determine if the application of ice pack before the procedure would decrease the pain perception of patients during the venepuncture among 61 children admitted to paediatric ward who were randomly assigned to two groups. Pain immediately and 5 minute after the venepuncture were scored on a visual analog scale (VAS) from 0 to 10 and the result showed that Cold pack is a simple, non-invasive and inexpensive technique for pain management before the venepuncture.

Baelen E , Dalmas S, Ducloux B, Scherpereel P . (2012) conducted a prospective study to assess the quality of skin analgesia provided by cryoanesthesia for 80 children between the ages of 5 and 15 years who were allocated to two groups: 40 children had a conventional venepuncture, 40 others had a venepuncture under cryoanesthesia. The spray of freon was applied for 10 seconds on the area of skin to be anaesthetised and venous cannulation was carried out. The intensity of pain at venepuncture was quantified with a visual

analogic scale (range 0 to 100). And the study concluded that freon spray provides a convenient analgesia for venepuncture in children aged 5-15 years.

Shah V, Ohlsson A. (2011) conducted an experimental study to determine whether venepuncture or heel lance is less painful and more effective for blood sampling in term neonates. Randomized controlled trials method was used and pain was assessed by validated pain scale Neonatal Infant Pain Scale (NIPS), Neonatal Facial Action Coding System (NFCS), Premature Infant Pain Profile (PIPP) score and cry characteristics. The result concluded that venepuncture appears to be the method of choice for blood sampling in term neonates and for each three venepunctures instead of heel lance, the need for one additional skin puncture can be avoided.

Stevens B, Yamada J, Ohlsson A. (2010). conducted an experimental study to determine the efficacy, effect of dose, and safety of sucrose for relieving procedural pain for term and/or preterm neonates via oral syringe, NG-tube, dropper or pacifier for procedural pain from heel lance or venepuncture. When pain scores (Premature Infant Pain Profiles) were pooled there was significant reduction in infants who were given sucrose (dose range 0.012 g to 0.12 g) compared to the control group. The result concluded that sucrose is safe and effective for reducing procedural pain from single painful events (heel lance, venepuncture).

Francesco Savino, Liliana Vagliano Simone Ceratto, Fabio Viviani, Roberto Miniero, and Fulvio Ricceri (2010) conducted an experimental study to evaluate the efficacy of the subjective Wong–Baker faces pain rating scale (WBFS) and of the objective skin conductance fluctuation (SCF)

test in assessing pain in 150 children of age 5–16 years undergoing venepuncture. So, pain level was measured in each child with WBFS and SCF. We found that the level of WBFS-assessed pain was lower in all children, particularly those above 8 years of age, than SCF-assessed pain ($p < 0.0001$). In conclusion, although both procedures can be useful for research and clinical practice, our findings show that WBFS was providing uniform data.

2.2 Literature review related to non-pharmacological interventions for pain during venepuncture.

Hartstein B.H,et al.,(2013), conducted a randomized, controlled study, in a convenience sample of 92 patients in the emergency department who required peripheral cannulation as part of their evaluation were enrolled in the study. All the subjects answered questionnaires pre and post IV placement and rated pain intensity during procedure on a 100 millimeter visual analogue scale. Participants in the study included 47(51.1%)of patients received the anesthetic spray and 45(48.9%) were randomly assigned to control group and had their IV line placed in a standard method. The mean pain score in the study group was 27 millimeter and 28 millimeter in the control group (p=0.934). Results revealed that anesthetic spray was an effective intervention in reducing pain during intravenous insertion.

Basaranoglu G, et al.,(2012), conducted a prospective randomized clinical trial to evaluate the effect of a Valsalva manoeuver, which stimulates the vagus nerve, on perception of pain during peripheral venous cannulation in adult patients. Among 110 patients scheduled for elective surgery, half of them underwent venepuncture during a Valsalva manoeuvre and the other half underwent venepuncture without performing a Valsalva manoeuvre. The

numerical rating scale score was 1.5+/-1.2 for Group A and 3.1+/-1.9 for Group B, the difference being statistically significant (P<0.0001). The result showed that the Valsalva manoeuvre may be of the value before venous cannulation as a simple and practical method to reduce pain from venous cannulation

Saju T.P,(2011), conducted a quasi experimental pre test - post test control group study to assess the effectiveness of vibratory audio visual stimulation to reduce acute evoked procedural pain experienced by the individuals, during invasive procedures in a selected health centre. Convenient sampling technique was used to select 80 persons who were receiving IM injection and among the participants 95% expressed a reduction in pain due to vibratory audio visual stimulation, 15% said that they had not experienced any reduction in pain. Results of the study suggested that vibratory audio visual stimulation was effective in reducing acute evoked procedural pain.

2.3 Literature review related to pain response on ice application prior to venepuncture.

Fadeelah Mansour Ahmed, Awatef El Sayed Ahmad , Hoda Mohamed Nafee El Sayed, (2016), conducted a study to identify Pain intensity after an ice pack application prior to venepuncture among school-age children. Fifty (50) school-age children aged from 6-12 years. They were chosen by simple random sample from the paediatric medical, surgical wards and paediatric emergency department and were divided equally into 2 groups. The study group received an ice pack application for three minutes prior to venepuncture procedure over the insertion site while the control group received routine hospital care. A structured interview questionnaire sheet was used included age, gender,

venepuncture procedure data and log table for recorded child's blood pressure, pulse rate and oxygen saturation as well as Wong-Baker (FACES) Self- report Pain Rating Scale, to assess pain intensity during the venepuncture among children in both groups. The study results revealed that, during venepuncture procedure, mean self-report pain score was lower among children in the study group than those in the control group with statistically significant difference, Self-reported pain intensity was decreased in older school-age children than the younger ones and was higher among male's children than females. The study concluded that the application of an ice pack prior to vein puncture procedure was effective in reducing pain intensity among school age children and it recommended that application of an ice pack has to be a part of the routine care of all children admitted to venepuncture procedure, so educational course related the ice back storage, uses and its application time over the vein puncture site should be conducted.

Tariq Mustafa Al–Abbass, Raghad Hussein Abdelkader, Noordeen Shoqirat and Hala Obeidat, (2016), conducted a quasi experimental study to examine the effect of parental presence in decreasing pain level among 102 children aged between 4 to 9 years at the emergency department of paediatric hospital in Amman, Jordan whom were conveniently sampled and evenly randomized into two groups: experimental group (n=53 children) with parental presence and control group (n= 49 children) parental absence during venepuncture. The primary instrument used to test pain level was the Wong-Backer faces. Result showed that the mean pain level in all children pre venepuncture was (0.8); the mean pain level in the control group during

venepuncture was (3.3) and post venepuncture it was (1.97), higher than the mean of pain level in the experimental group, which was (2.4) during and (1) post venepuncture ($p <. 05$). Parental presence had a significant impact on decreasing pain levels in children during venepuncture. The study recommended for policy on allowing parental presence during invasive procedures.

Hewida A. Hussein,(2015), conducted a quasi-experimental research design to assess effect of active and passive distraction on decreasing pain associated with painful medical procedures among 75 hospitalized school aged children who were undergoing painful procedure (IV medication). They were assigned by convenient sampling and were divided into 3 equal groups, (25 children in active distraction group, 25 children in passive distraction group and 25 children in control group). There were four tools used in the study: A structured socio-demographic questionnaire, Numeric Rating Scale (NRS), Wong-Baker FACES Pain Rating Scale and child's pain record. The result revealed that the majority of school age children in both active and no distraction groups were females, while majority of them in passive distraction group was males and the mean age of those school age children in active group was 8.344±.96526 years whereas in passive group was 8.784±1.1671 years while in no distraction group was 8.308±1.133 years and explained that mean scores of pain based on the NRS in active group was 2.98 ± 1.041 and in passive group was 4.44 ± 1.044 whereas in no distraction group was 5.20 ±.81. The study concluded that active distraction is effective in decreasing intensity of pain of school age children greater than in passive or no distraction techniques. The study recommended that active distraction should be applied for children with during

painful medical procedures, provision of training program for nurses about effectiveness of active distraction in care of children with during painful medical procedure.

Edzard Ernst, Veronika Fialka, (2015), conducted a clinical trial to evaluate the effectiveness of analgesic cold therapy among the physical treatments to reduce pain, ice has had its place for many years. Experience tells us that ice has a strong short-term analgesic effect in many painful conditions, particularly those related to the musculoskeletal system. Serial applications may also be helpful. The scientific evidence from clinical trials is, however, fragmentary. This applies both for acute and serial cold-induced analgesia. The mechanisms by which cryotherapy might elevate pain threshold include an antinociceptive effect on the gate control system, a decrease in nerve conduction, reduction in muscle spasms, and prevention of edema after injury. It is concluded that ice may be useful for a variety of musculoskeletal pains.

Sabitha PB, Khakha DC, Mahajan S, Gupta S, Agarwal M, Yadav, (2014), conducted a study to evaluate the effectiveness of cryotherapy on arteriovenous fistula puncture-related pain in hemodialysis patients among 60 patients (30 each in experimental and control groups) who were undergoing hemodialysis by using AVF, was assessed in a randomized control trial. Hemodialysis patients who met the inclusion criteria, were randomly assigned to experimental and control groups using a randomization table. Objective and subjective pain scoring was done on two consecutive days of HD treatment and the pain scores were found to be significantly (P = 0.001) reduced within the experimental group with the application of cryotherapy. This study highlights the

need for adopting alternative therapies such as cryotherapy for effective pain management in hospital settings.

Sevil I ˙nal, and Meral Kelleci,(2012), conducted a randomized controlled trial study to investigate the effect of external cold and vibration stimulation on pain and anxiety levels of children during blood specimen collection. The sample consisted of 120 children aged from 6 to 12 years undergoing phlebotomy randomly assigned to a control group (no intervention) and to experimental group that received external cold and vibration a device. External cold and vibration were applied just before the blood specimen collection procedure and continued until the end of the procedure. Preprocedural and procedural anxiety were assessed using the Children's Anxiety and Pain Scale along with parent and observer reports. Procedural pain was assessed via the Faces Pain Scale-Revised along with self-report of children, and parents' and observer's reports. The study result showed that the experimental group showed significantly lower pain ($p < .001$) and anxiety levels ($p < .001$) compared to the control group during the blood specimen collection procedure. Thus use of external cold and vibration decreased perceived pain and reduced children's anxiety during blood specimen collection.

Sarifakioglu N,(2014), conducted an experimental study to assess the effectiveness of ice application on the treatment zone prior to type -A botulinum toxin treatment on the pain during injections among twenty four patients who underwent botulinum type-A toxin in upper face for esthetic purposes. Ice application was done five minutes prior the injections on the right lateral orbital zones of the patients, and on their left sides, toxin were injected without applying

ice. The average visual analog scale values indicating the pain that the subjects felt in their right and left sides were found as 1.1 and 5.9, respectively. Results revealed that ice application is effective in reducing pain during injections.

Kiran et al. (2013) conducted a study to evaluate the effect of an ice pack application at the site prior to venepuncture on the intensity of pain that reported by children, they showed that a statistically significant reduction in pain during venepuncture among children in the experimental group than others. One third percentages of children in the study group compared to zero percentages of them in the control group reported no pain, while no children reported severe pain in the study group compared with 28% of them in the control group and also mild, moderate pain intensity were reported by 68% of children in the study group compared with 72% of those in the study group with statistically significant differences $P<0.001$. So by the children' self-report pain scores, the study indicated that mean self-report pain score was lower among children in the study group than those in the control group with statistically significant difference , Mean ±SD (1.92±0.316 and 4.40±0.490) respectively $P<0.001$.

Saeki Y,(2012), conducted a study to evaluate the effect of the application of cold or hot on the pricking pain sensation based on autonomic responses. Electrical stimulations were applied to subjects arms as an artificial pricking pain, the skin blood flow and skin conductance level at the tip of the finger were measured. Pain was assessed using visual analog scale. Pain stimulation produced a significant rise in skin conductance level and a significant decrease in blood flow. Cold application to the stimulation site using an ice-water pack decreased blood flow and skin conductance responses and sensation of pain. Application of

heat, by hot water bottle resulted in a significant rise in pain sensation . The results suggested that cold application promotes relief of pricking pain sensation and suppress the autonomic responses, and the application of heat has no such effect.

Sylvia M. Kubsch,(2012), conducted an experimental study to evaluate the effect of cutaneous stimulation (cryotherapy) on pain reduction in Emergency Department patients and the second objective was to identify the effect of cutaneous stimulation on blood pressure and heart rate. Potential factors that could influence the dependent variables such as age, gender, educational level, location of pain, and site of cutaneous stimulation were tested. All 50 samples were treated with cutaneous stimulation to relieve pain. After cutaneous stimulation, subjects reported significant reduction in pain, and demonstrated decrease in heart rate, and blood pressure readings. The most effective site of cutaneous stimulation was contralateral to the pain . Age, gender and educational level had no significant effect. The results of this study provide empirical evidence that cutaneous stimulation effectively reduces pain, heart rate, and blood pressure.

Richman P B, et al.,(2012),conduced a paired clinical trial to evaluate the effectiveness of ice in reducing the pain of intravenous catheter placement among 28 adult volunteers. An ice pack was placed over one arm for 10 minutes, followed by insertion of an 18-gauge angio catheter in both arms. Patients recorded their pain assessment after each venepuncture on a previously validated 100-mm visual analog scale and identified their preferred method for the procedure (pretreatment with ice or no pretreatment). The mean pain score for catheter placement on arms pretreated with ice was 27.5 Â± 15.9 mm; the mean

pain score for the control arms was 34.2 Â± 21.6 mm (P = 0.17). The study result revealed that application of icepack was an effective method in reducing pain of intravenous catheter placement.

Movahedi Fakhar Ali,et al.,(2011), conducted a quasi-experimental study to determine the effect of local refrigeration applied to skin prior to venepuncture on pain-related responses among 80 school-age children who got admitted in the emergency ward in the paediatrics center in Iran. They were selected by purposive sampling and were divided into two equal groups: test and control. In the test group the physiological responses were measured prior to venepuncture. Then the skin on the area of venepuncture was refrigerated by an ice bag for 3 minutes and the procedure is performed immediately. After five minutes of the procedure the physiological responses, behavioural responses and subjective responses were measured. In terms of the physiological responses before and after the procedure in the experimental and control group, there was no significant difference (p=0.07) between the two groups. There was a significant difference (p=0.0011) between the test and control groups with regard to the behavioural responses to the painful procedure. There was also a significant difference (p=0.0097) in the subjective data in the two groups after venepuncture. The study result revealed that the local refrigeration was effective in reducing venepuncture pain.

SECTION- B

2.4 Conceptual Framework

Conceptual framework is a network of inter-related concepts that provide a structure for organizing and describing the phenomenon of interest. Research studies are based on a theory or conceptual framework that facilitates visualizing the problem and places the variables in a logical context.

This study was based on the concept of cryotherapy for reducing pain during venepuncture among children in paediatric ward. The investigator adopted a Widenbach's prescriptive theory (1964) as the foundation for developing the conceptual framework.

WIDENBACH'S PRESCRIPTIVE THEORY IS MADE UP OF THREE FACTORS AS FOLLOWS:

The central purpose

Prescription

Realities

Central purpose:

The nurse's central purpose defines that quality of health she desires to effect and she recognizes to be her special responsibility in caring for the patient. In this study the central purpose is to assess the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepunture among children in paediatric ward, Government Rajaji Hospital, Madurai.

Prescription;

Once the nurse identified needs of the patient, she develops a prescription or plan of care. In this study, the investigator planned to provide cryotherapy for the 2 experimental groups.

Realities:

The realities are:

Agent

Recipient

Goal

Framework

THE CONCEPTUAL FRAMEWORK OF THIS NURSING THEORY CONSISTS OF FOLLOWING STEPS:

Identification of the patients need for help.

Ministering of the help.

Validation that the action taken was helpful to patient.

Identification:

The nurse identifies the patient need. In this study, the need was pain reduction during venepuncture among children.

Ministration:

Ministering to the patient, the nurse apply a comfort measure, or therapeutic procedure.

Ministering has two components:

Prescription:

The nurse provides care to the patient. Cryotherapy will be given for 15 seconds in experimental group 1 and for 30 seconds in experimental group 2.

Realities:

Agent: It means who is the practicing nurse.

In this study the researcher is the agent.

Recipient: The patient's are the recipients of the nurse's action.

In this study the children were the recipients.

Goal: The goal is the desired outcome the nurse wishes to achieve.

In this study the goal is to reduce the pain during venepuncture.

Framework: Framework consists of human, environmental, professional and organization facilities.

In this study the framework is paediatric ward.

Validation:

After help has been ministered the nurse validated that the actions were indeed helpful. At the end the child was assessed for the level of pain using the Wong Baker's Pain Assessment Scale.

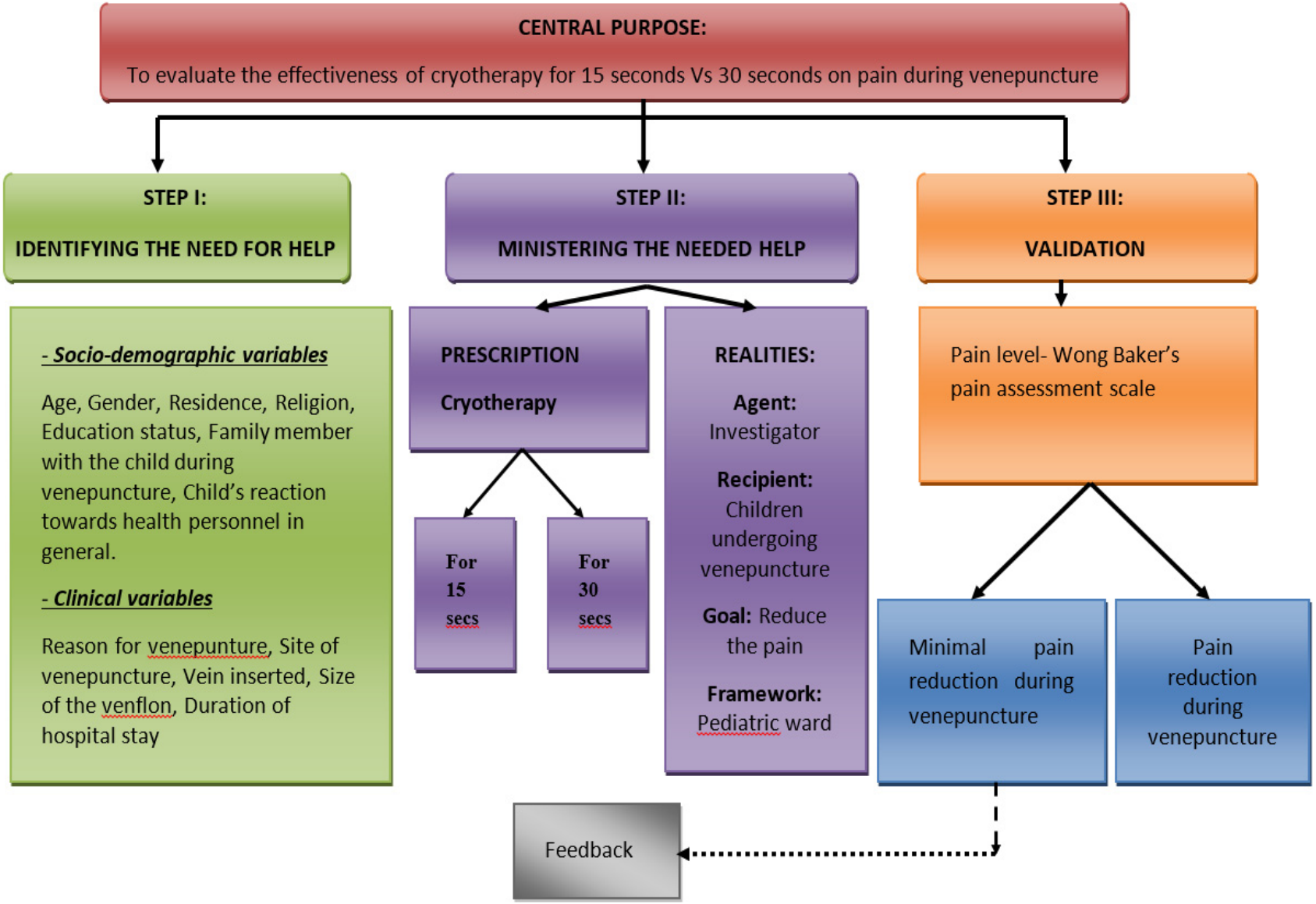


Figure 1:MODIFIED WIDENBACH'S HELPING ART OF CLINICAL NURSING THEORY (1964)

Research Methodology

CHAPTER III

RESEARCH METHODOLOGY

Research methodology is the systematic way of doing a research to solve a problem. It comprises of the research approach, research design, statistical methods used for analyzing the data and the logic behind it. **(Kothari CR, 2003).** On the whole it gives a general pattern of gathering and processing the research data.

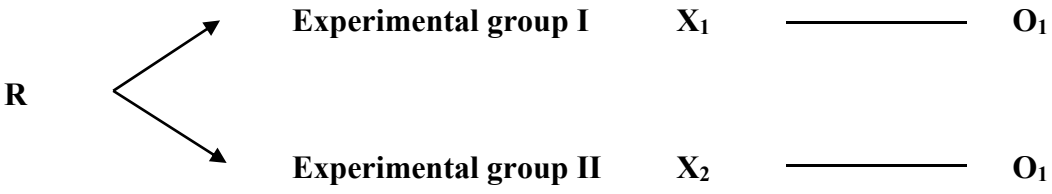
This chapter describes the methodology adopted for evaluating effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward, Government Rajaji Hospital, Madurai. The methodology includes the research design, setting of the study, population, sample and sample size, sampling technique, description of the tool, method of data collection and plan for data collection.

3.1 Research Approach

A **quantitative approach** was adopted by the researcher to evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward, Government Rajaji Hospital, Madurai.

3.2 Research Design

The research design selected for this study was **True experimental post test only design.**



KEY:

R - Randomization

X_1- Intervention [cryotherapy for 15 seconds prior to the venepuncture.]

X_2- Intervention [cryotherapy for 30 seconds prior to the venepuncture.]

O_1- Post test level of pain during venepuncture among children.

3.3 Research Variables

Independent Variable

In this study, the independent variable was cryotherapy.

Dependent Variable

In this study, the dependent variable was the level of pain during venepuncture among children.

Socio demographic Variables

Socio demographic variables include:

Part I: Socio demographic variables-

Age, Gender, Residence, Religion, Education status, Family member with the child during venepuncture, Child's reaction towards health personnel in general.

Part II: Clinical variables-

Reason for venepuncture, Site of venepuncture, Vein used for venepuncture, Size of the venflon, Duration of hospital stay.

3.4 Setting of the Study

The study was conducted in the paediatric Medical and Surgical ward at Government Rajaji Hospital, Madurai. It is situated at Goripalayam. The hospital was started in the year 1940. It is 3106 bedded multi specialty hospital. It is the biggest

hospital in south Tamil Nadu with adequate facilities. The paediatric wing is named as Institute of Child Health and Research Centre which has six medical units and two surgical units and other specialty units. The bed strength of Institute of Child Health and Research Centre is 200 in which paediatric surgery is 50 bedded. This institution has been rendering meritorious services. An average of 900-1000 children irrespective of age are admitted in the paediatric wards per month and 92% of them require venepuncture for the reasons such as blood sampling, starting IV line either for infusing IV fluids and injections or dyes during investigations.

3.5 Population

Target Population

The children who got admitted in paediatric ward and was adviced for venepuncture either to draw blood sample or for IV cannulation.

Accessible population

The children who got admitted and was adviced for venepuncture either to draw blood sample or for IV cannulation in the paediatric ward, Government Rajaji Hospital, Madurai.

3.6 Sample

Children who got admitted and was adviced for venepuncture either to draw blood sample or for IV cannulation and those who met the inclusion criteria in the paediatric ward, Government Rajaji Hospital, Madurai.

3.7 Sample size

Sample size was 60, among these 30 samples were in experimental group I and 30 samples were in experimental group II.

3.8 Sampling Technique

Sampling technique used in the study was Non-Probability sampling - (Consecutive Sampling) Technique. 60 children were included in the study those who fulfilled the sampling criteria.

3.9 Criteria for sample selection

Inclusion Criteria:

- Children who undergone venepuncture for the first time.
- Children of both sexes.
- Children between the age group of 3-6 years.

Exclusion criteria

- Children who were not available at the time of data collection.
- Acutely ill children.
- Children of parents who were not willing to include their children for the study.

3.10 Selection and description of the tool

The tool was developed after extensive review of literature, internet search and discussion with the experts. In order to measure the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children, a structured questionnaire for demographic variables and Wong Baker Pain Assessment Scale was used for the study.

Section A: Socio demographic Variables

Section B: Wong Baker Pain Assessment Scale

Section A: (Socio demographic Variables)

A structured questionnaire was used to assess the demographic variables of the patient such as

Part I: Socio demographic variables-

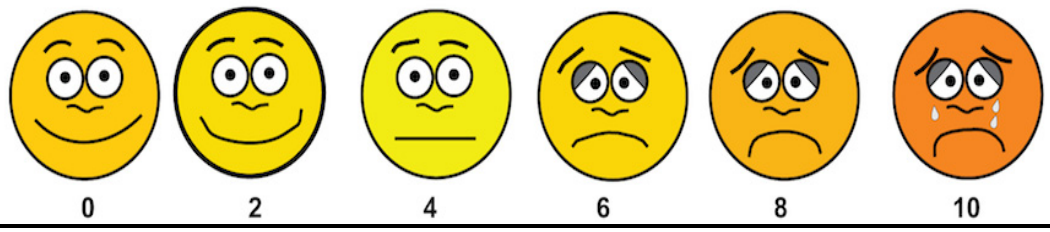
Age, Gender, Residence, Religion, Education status, Family member with the child during venepuncture, Child's reaction towards health personnel in general.

Part II: Clinical variables-

Reason for venepunture, Site of venepuncture, Vein used for venepuncture, Size of the venflon, Duration of hospital stay.

Section B:

Wong Baker Pain Assessment Scale was used to assess the pain level of children.



0 No Hurt (pleasant and smiling face)

1-2 Hurts Little Bit (little bit confused and smile)

3-4 Hurts Little More (blank face without any reaction)

5-6 Hurts Even More (sad and about to cry)

7-8 Hurts Whole Lot (drooping eyebrows and cry)

9-10 Hurts Worst (scream and uncontrollable cry)

3.11 Scoring procedure:

SCORE	LEVEL OF PAIN
0	No pain
1-2	Mild pain
3-4	Moderate pain
5-6	Severe pain
7-8	Very Severe pain
9-10	Worst pain

3.12 Testing of the tool

Reliability of the tool

The reliability of an instrument is the degree of consistency with which it measures the attribute and it is supposed to be measuring over a period of time. The inter-rater reliability coefficient for Wong Baker's Pain Assessment Scale were found to be high, with value r=0.75. Hence the tool was considered highly reliable for proceeding with the main study.

Content validity:

The tool was validated by experts from the field of Child Health Nursing and experts from medical and surgical department of Paediatrics. The experts were requested to check the relevance, sequence and adequacy of the items in the interview schedule.

3.13 Pilot Study

Pilot study generally involves a sample drawn from the same population as those from which the study sample will be drawn. The pilot study was conducted in the paediatric ward in Government Rajaji Hospital, Madurai, for a period of one week. Formal permission was obtained from the Director of the Institute of Child Health and Research and from the Head of the Department of Surgery. The pilot study was conducted from 06/03/2017 to 12/03/2017. 10 samples those who fulfilled the inclusion criteria were chosen by using Non-Probability consecutive sampling technique. Informed consent was obtained from the caregivers of the sample and data was collected. The instrument was checked for reliability, few modifications were done in the research design and age group for proceeding with the main study.

3.14 Ethical consideration

This study was conducted after the approval from the Ethics committee Madurai Medical College, Madurai-20. All the respondents were carefully informed about the purpose of the study and their part during the study and how the privacy was guarded. Confidentiality was ensured. Written permission was obtained from all participants.

3.15 Data collection Procedure

After obtaining formal administrative approval from concerning authorities and informed consent from the parents the investigator personally collected the data. Children who are suggested to be admitted come to paediatric ward, and those who are

adviced for venepuncture either to draw blood sample or for IV cannulation who met the inclusion criteria are selected and divided into two groups. After arranging the needed articles for venepuncture and selecting the site, samples of the experimental group I received cryotherapy for 15 seconds before venepuncture at that site and samples of the experimental group II received cryotherapy for 30 seconds before venepuncture at that site. The post test level of pain was assessed for both the experimental groups by using Wong Baker Faces Scale**.**

3.16 Plan for data analysis:

The data collected was analyzed by means of descriptive and inferential statistics.

Descriptive statistics:

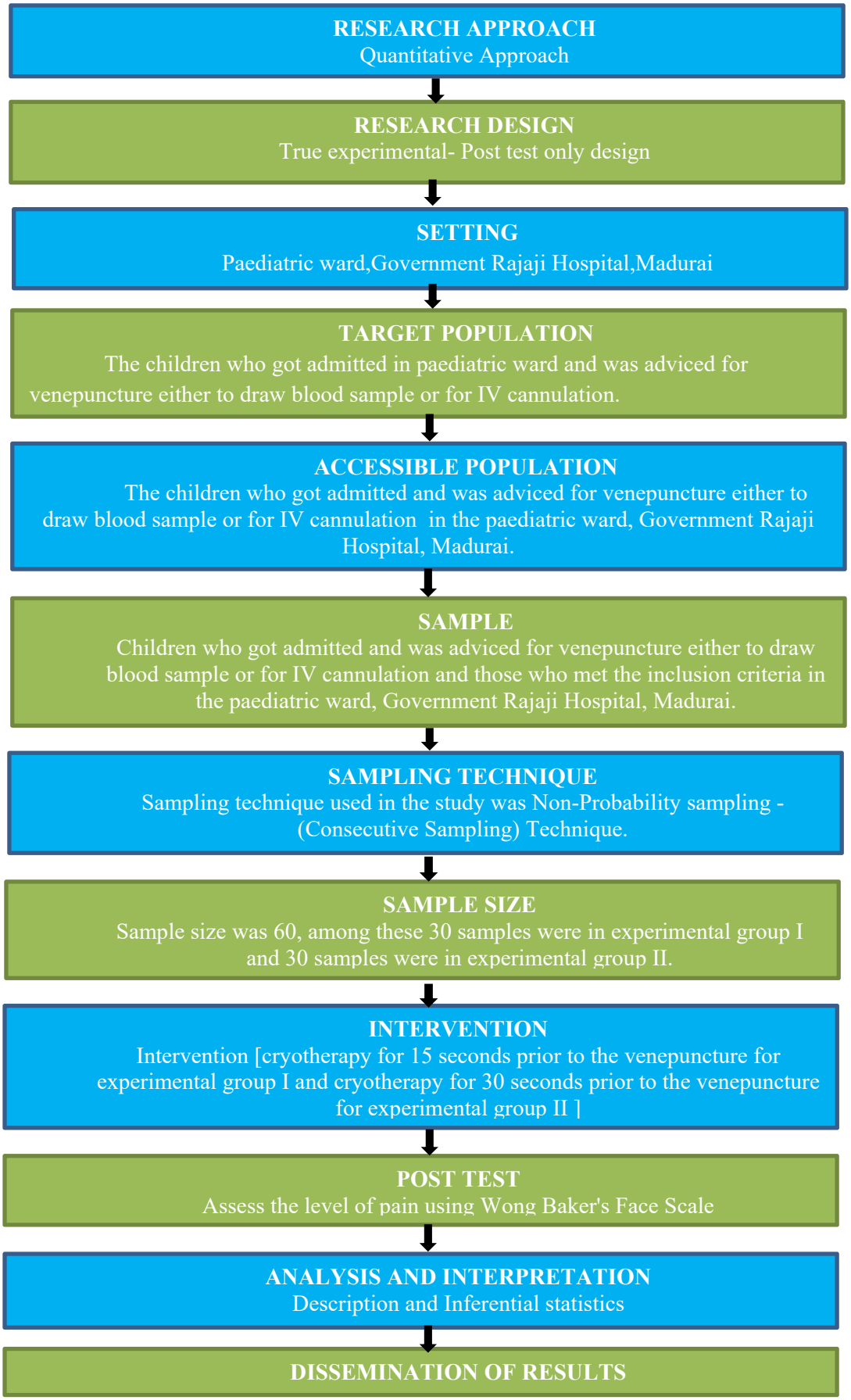
- Frequency and percentage distribution was used to describe demographic variables.
- Mean and standard deviation was used to analyze the post test level of pain during venepuncture among children.

Inferential statistics:

- Unpaired‘t’ test was used to compare the post test level of pain during venepuncture among children in experimental group I and experimental group II.
- Chi – square test was used to analyze the association of post test level of pain during venepuncture among children in experimental group I and experimental group II with their selected socio demographic variables and clinical variables.

3.17 Protection of Human Rights

The investigator obtained approval from the dissertation committee of College of Nursing, Ethics Committee, Director of Child Health and Research Centre and Principal of College of Nursing. Both verbal and written consent was obtained from all the participants. The subjects were informed that they can withdraw from the study without any penalty. Confidentiality and anonymity was maintained throughout the study.



3.18 SCHEMATIC REPRESENTATION OF THE STUDY

Data Analysis And Interpretation

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

Analysis is the process of categorizing, ordering, manipulating and summarizing of data to obtain an answer to the research question. The purpose of analysis is to reduce the data to an intelligible and interpretable form so that relations for the research problem can be studied and tested.

This chapter deals with analysis and interpretation of data collected from 60 subjects that is 30 in experimental group I and 30 in experimental group II to evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward, Government Rajaji Hospital, Madurai.

4.1 Organization of data

The analysis and interpretation of data was organized under the following sections.

Section I:

Distribution of children in paediatric ward according to their socio-demographic variables and clinical variables.

Section II:

Description of level of pain during venepuncture among children in paediatric ward.

Section III:

Effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward.

Section IV:

Association between the level of pain during venepuncture among children in experimental group I in paediatric ward with their selected socio-demographic variables and clinical variables.

Section -1

Distribution of children in paediatric ward according to their socio-demographic variables and clinical variables:

Table-1:

Frequency and percentage distribution of children in paediatric ward according to their socio-demographic variables.

n=60

S .No	Socio-demographic variables	Experimental-I group		Experimental-II group	
		f	%	f	%
1.	**Age(in years):**				
	3-4 years	8	26.7	8	26.7
	4-5 years	12	40	10	33.3
	5-6 years	10	33.3	12	40
2.	**Gender :**				
	Male	17	56.7	22	73.3
	Female	13	43.3	8	26.7
3.	**Residence:**				
	Rural	19	63.3	18	60
	Urban	11	36.7	12	40
4.	**Religion:**				
	Hindu	25	83.3	29	96.7
	Christian	4	13.3	1	3.3
	Muslim	1	3.3	0	0
	Others	0	0	0	0
5.	**Educational status:**				
	Kindergarten	12	40	12	40
	Primary	13	43.3	13	43.3
	Not yet joined school	5	16.7	5	16.7
6.	**Family member with the child during venepuncture:**				
	Parents	29	96.7	28	93.3
	Grand parents	1	3.3	2	6.7
	Others	0	0	0	0

7.	**Child's reaction towards health professional:**				
	Attaches in few minutes	16	53.3	21	70
	Aggressive behavior	8	26.7	7	23.3
	Fear and avoidance	6	20	2	6.7

Above table reveals that demographic information of children those who participated in the following study on, a study to evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward, Government Rajaji Hospital, Madurai.

Considering the age wise distribution of children in experimental group I, 8 (26.7%) children were in 3-4 years of age, 12 (40%) children were in 4-5 years of age and 10 (33.3%) children were in 5-6 years of age. In experimental group II, 8 (26.7%) children were in 3-4 years of age, 10 (33.3%) children were in 4-5 years of age and 12 (40%) children were in 5-6 years of age.

Regarding sex wise distribution in experimental group I, 17 (56.7%) children were males and 13 (43.3%) children were females. In experimental group II, 22 (73.3%) children were males and 8 (26.7%) children were females.

With respect to area of residence in experimental group I, 19 (63.3%) children were residing in rural area and 11 (36.7%) children were residing in urban area. In experimental group II, 18 (60%) children were residing in rural area and 12 (40%) children were residing in urban area.

Based on the religion in experimental group I, 25 (83.3%) children were hindus, 4 (13.3%) children were christians, 1 (3.3%) child was muslim and none were of other religion. In experimental group II, 29 (96.7%) children were hindus, 1 (3.3%) child was christian, none were muslims and other religion.

Considering the educational status in experimental group I, 12 (40%) children were studying kindergarten, 13 (43.3%) children were studying primary

school and 5 (16.7%) children had not yet joined school. In experimental group II, 12 (40%) children were studying kindergarten, 13 (43.3%) children were studying primary school and 5 (16.7%) children had not yet joined school.

With the view of family member with the child during venepuncture in experimental group I, 29 (96.7%) children came with their parents, 1 (3.3%) child came with his grandparent and none came with other relatives. In experimental group II, 28 (93.3%) children came with their parents, 2 (6.7%) children came with their grandparents and none came with other relatives.

On the basis of child's reaction towards health professional in experimental group I, 16 (53.3%) children got attached in few minutes, 8 (26.7%) children behaved aggressive and 6 (20%) children had fear and avoidance. In experimental group II, 21 (70%) children got attached in few minutes, 7 (23.3%) children behaved aggressively and 2 (6.7%) children had fear and avoidance.

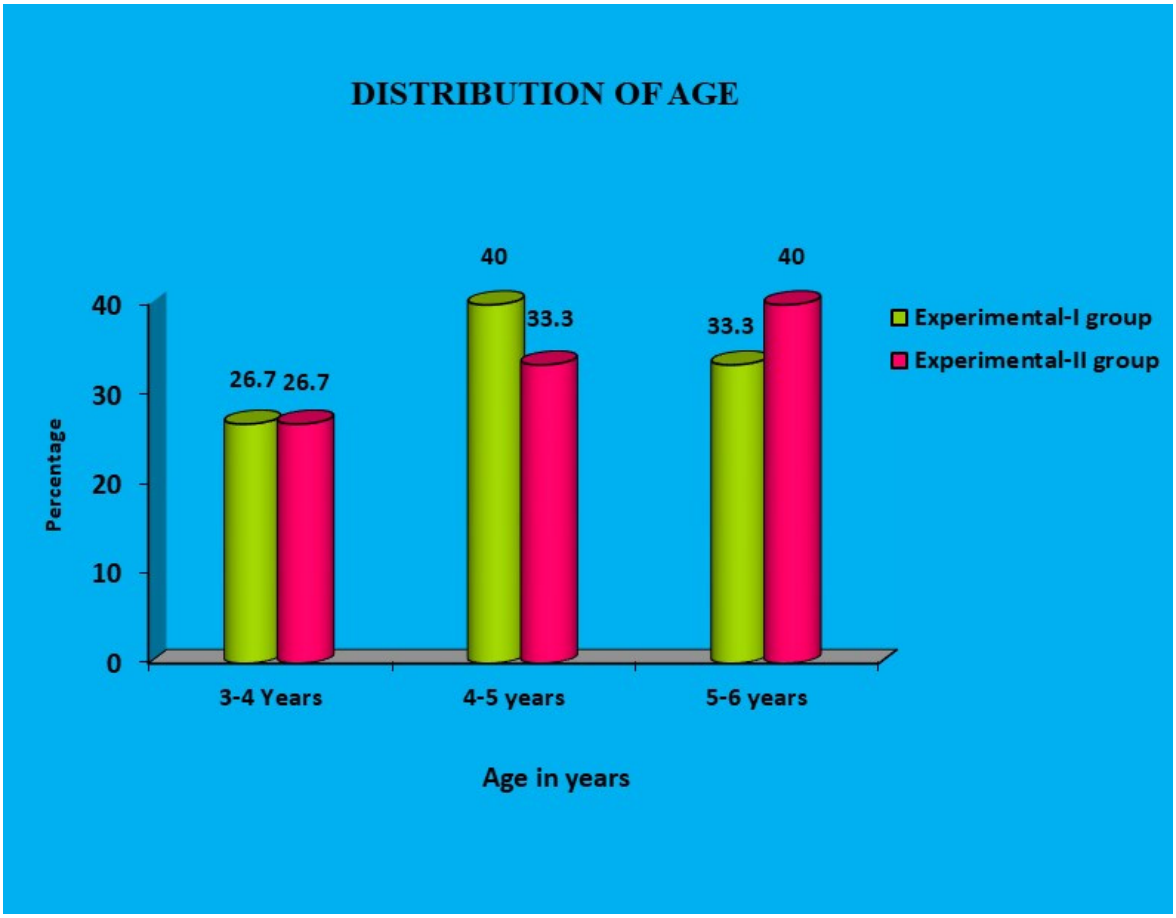


Fig.2. Percentage distribution of children according to their age in experimental group I and experimental group II

The above cylinder diagram represents that, in experimental group I, 26.7% were in 3-4 years of age, 40% were in 4-5 years of age and 33.3% were in 5-6 years of age. In experimental group II, 26.7% were in 3-4 years of age, 33.3% were in 4-5 years of age and 40% were in 5-6 years of age.

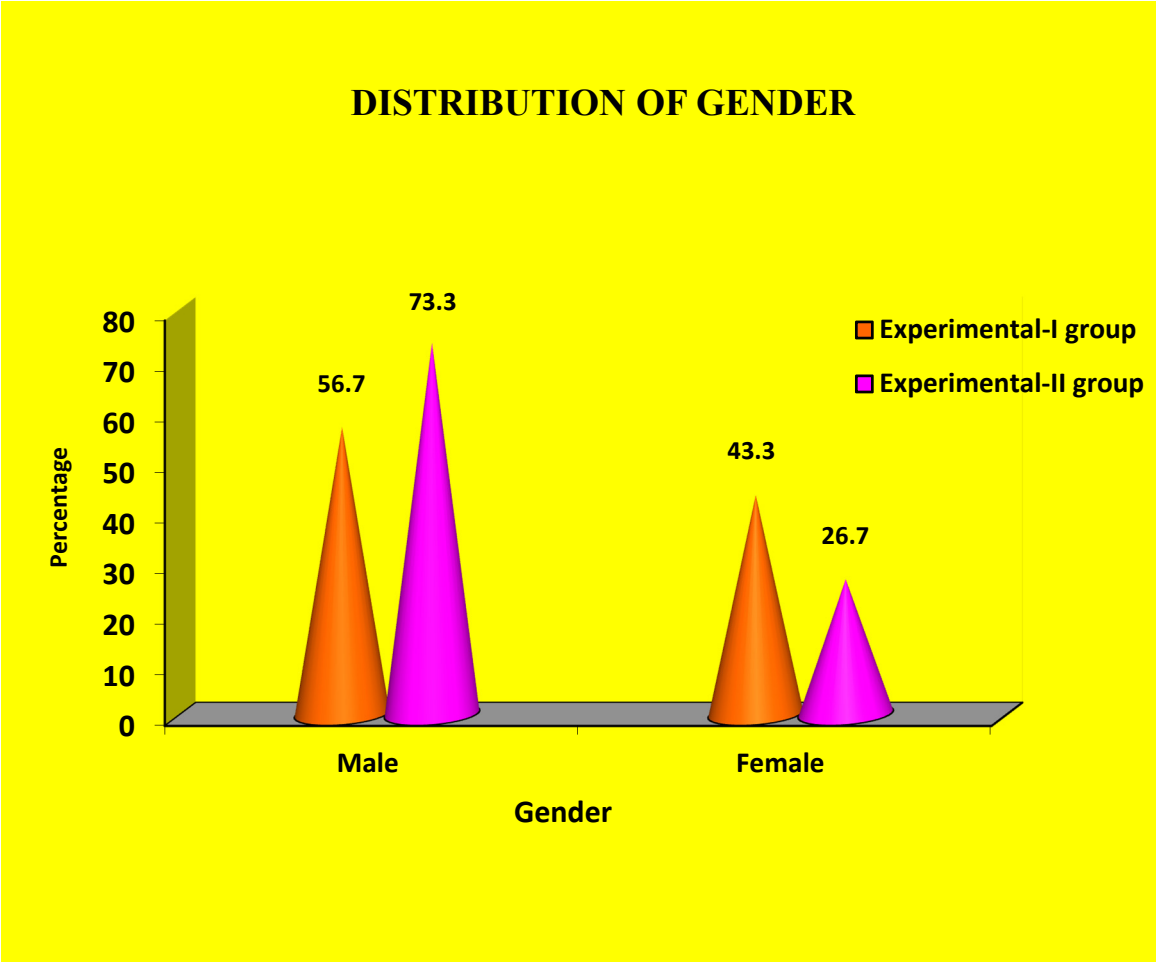


Fig.3. Percentage distribution of children according to their gender in experimental group I and experimental group II

The above cone diagram represents that, in experimental group I, 56.7% were males and 43.3% were females. In experimental group II, 73.3% were males and 26.7% were females..

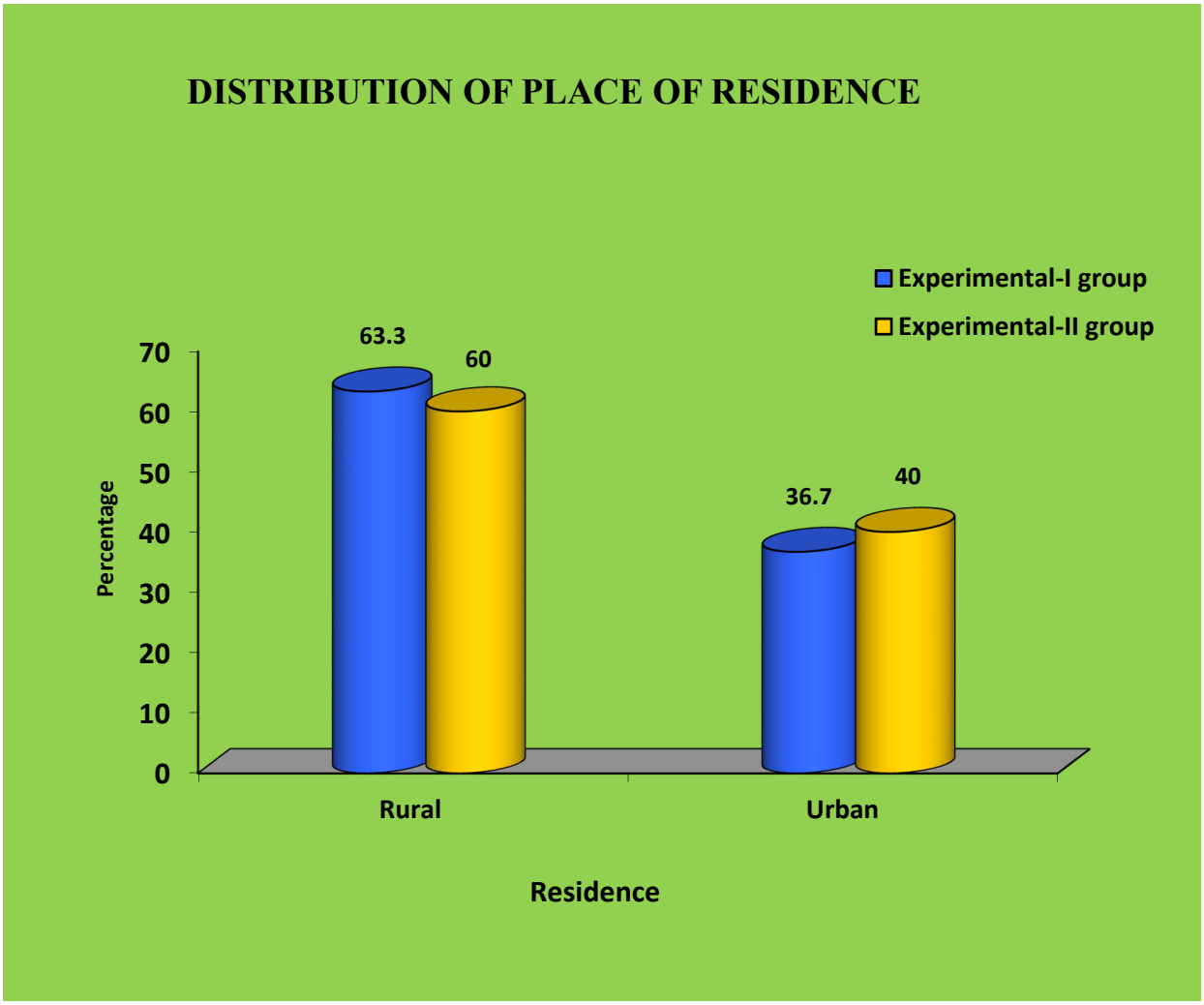


Fig.4. Percentage distribution of children according to their residence in experimental group I and experimental group II

The above cylinder diagram represents that in experimental group I, 63.3% were residing in rural area and 36.7% were residing in urban area. In experimental group II, 60% were residing in rural area and 40% were residing in urban area.

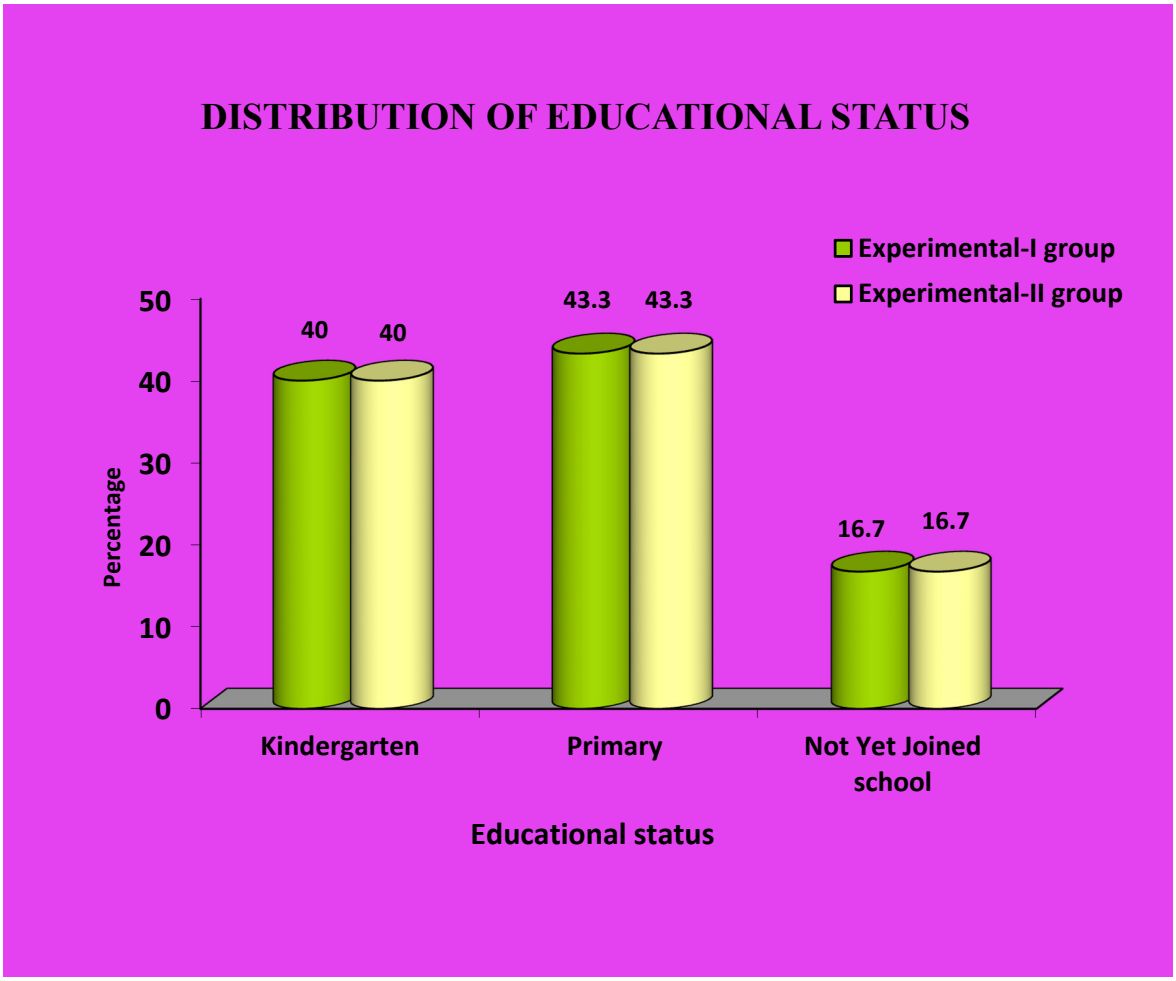


Fig.5. Percentage distribution of children according to their educational status in experimental group I and experimental group II

The above cylinder diagram represents that in experimental group I, 40% were studying kindergarten, 43.3% were studying primary school and 16.7% had not yet joined school. In experimental group II, 40% were studying kindergarten, 43.3% were studying primary school and 16.7% had not yet joined school.

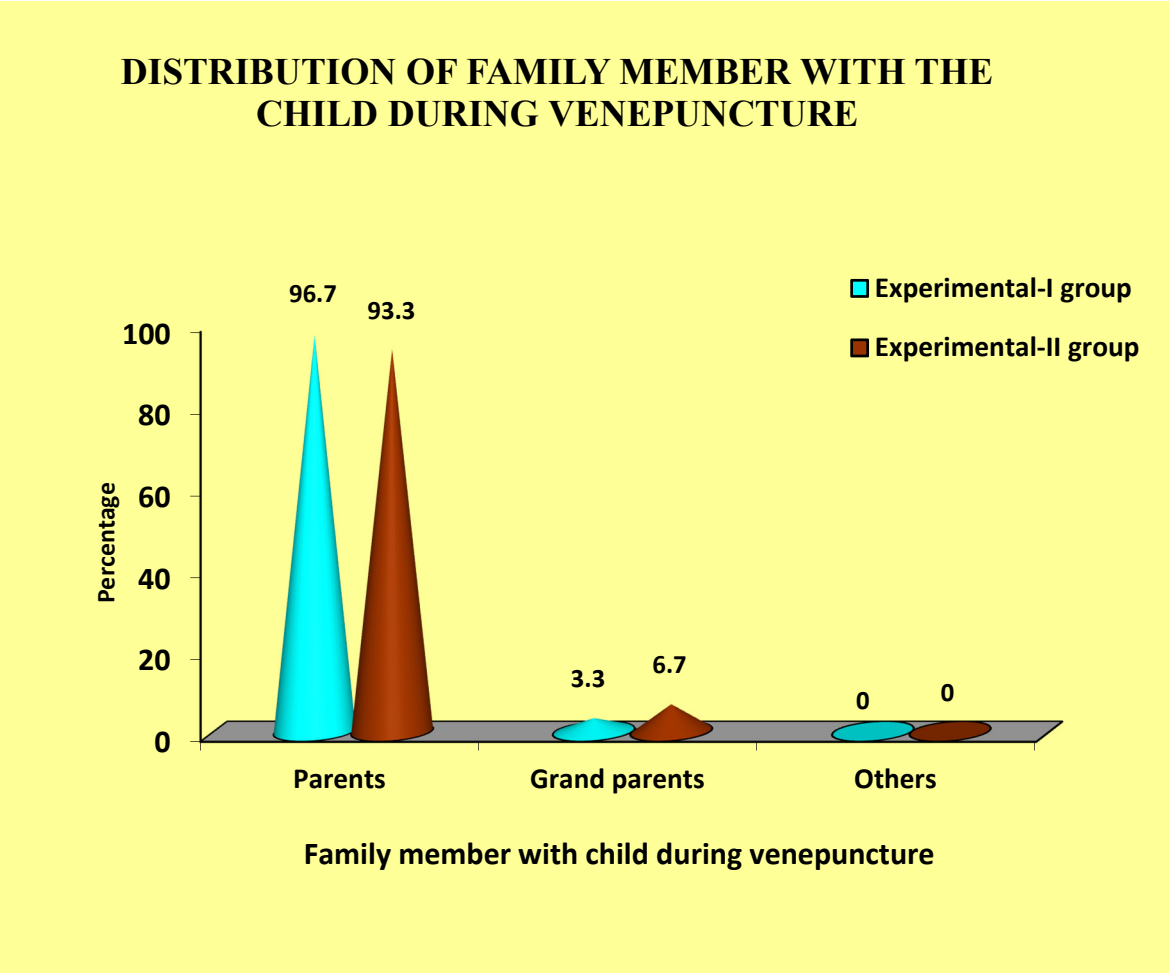


Fig.6. Percentage distribution of children according to their family member with child during venepuncture in experimental group I and experimental group II

The above cone diagram represents that, in experimental group I, 96.7% children came with their parents, 3.3% came with their grandparents and none came with other relatives. In experimental group II, 93.3% came with their parents, 6.7% came with their grandparents and none came with other relatives.

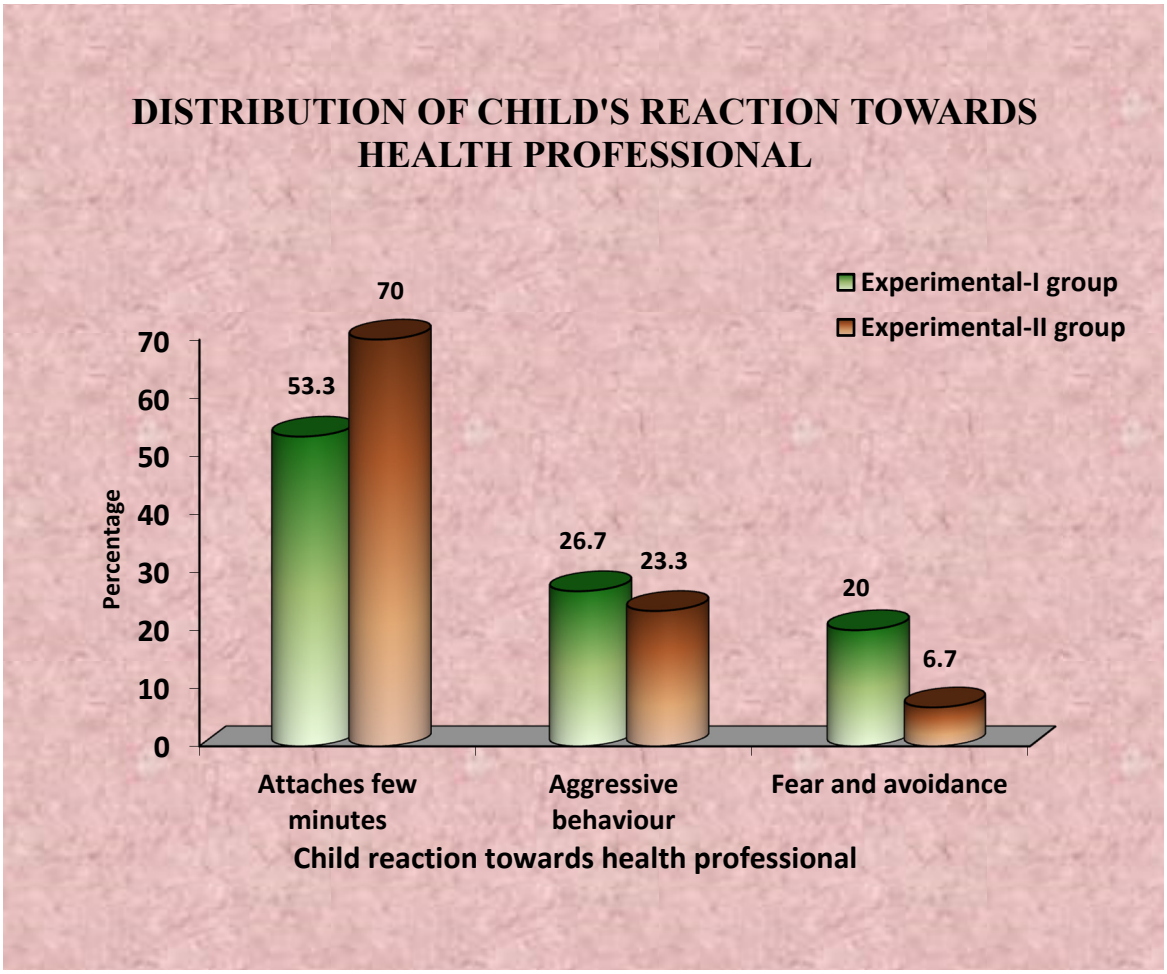


Fig.7. Percentage distribution of children according to their child reaction towards health professional in experimental group I and experimental group II

The above cylinder diagram represents that in experimental group I, 53.3% got attached in few minutes, 26.7% behaved aggressively and 20% had fear and avoidance. In experimental group II, 70% got attached in few minutes, 23.3% behaved aggressively and 6.7% had fear and avoidance.

Table –2

Frequency and percentage distribution of children in paediatric ward according to their clinical variables.

n=60

S.No	Clinical variables	Experimental-I group (n=30)		Experimental-II group (n=30)	
		f	%	f	%
1.	**Reason for venepuncture :**				
	Investigations	20	66.7	20	66.7
	IV administration of medicines and fluids	10	33.3	10	33.3
2.	**Site of venepuncture :**				
	Upper extremities	27	90	30	100
	Lower extremities	3	10	0	0
3.	**Vein used for venepuncture:**	13	43.3	18	60
	Metacarpal vein	0	0	0	0
	Cephalic vein	13	43.3	12	40
	Basilic vein	0	0	0	0
	Cubital vein	4	13.3	0	0
	Others				
4.	**Size of the venflon :**				
	24	20	66.7	16	53.3
	22	10	33.3	14	46.7
	20	0	0	0	0
5.	**Duration of hospital stay :**	22	73.3	25	83.3
	1 day	6	20	3	10
	2 days	2	6.7	2	6.7
	3 days				

Based on the reason for venepuncture in experimental group I, 20 (66.7%) children had blood drawn for investigations and 10 (33.3%) children had IV administration of medicines and fluids. In experimental group II, 20 (66.7%) children

had investigations and 10 (33.3%) children had IV administration of medicines and fluids.

Regarding on the site of venepuncture in experimental group I, 27 (90%) children had cannula in upper extremities and 3 (10%) children had cannula in lower extremities. In experimental group II, 30 (100%) children had cannula in upper extremities and none had cannula in lower extremities.

Considering the vein inserted in experimental group I, for 13 (43.3%) children metacarpal vein was punctured, no child had cephalic vein punctured, for 13 (43.3%) children basilic vein was punctured, no child had cubital vein punctured and for 4 (13.3%) children other vein was punctured. In experimental group II, for 18 (60%) children metacarpal vein was punctured, no child had cephalic vein punctured, 12 (40%) children basilic vein was punctured, no child had cubital vein punctured and no child other vein punctured.

On the basis of size of the venflon in experimental group I, 20 (73.3%) children had 24 guage sized venflon, 10 (33.3%) children had 22 gauge sized venflon and none of the children had 20 gauge sized venflon. In experimental group II, 16 (53.3%) children had 24 gauge sized venflon, 14 (46.7%) children had 22 gauge sized venflon and none of the children had 20 gauge sized venflon.

Regarding the duration of hospital stay in experimental group I, 22 (73.3%) children came on 1st day, 6 (20%) children came on 2nd day and 2 (6.7%) children came on third day of admission. In experimental group II, 25 (83.3%) children came on 1st day, 3 (10%) children came on 2nd day and 2 (6.7%) children came on third day of admission.

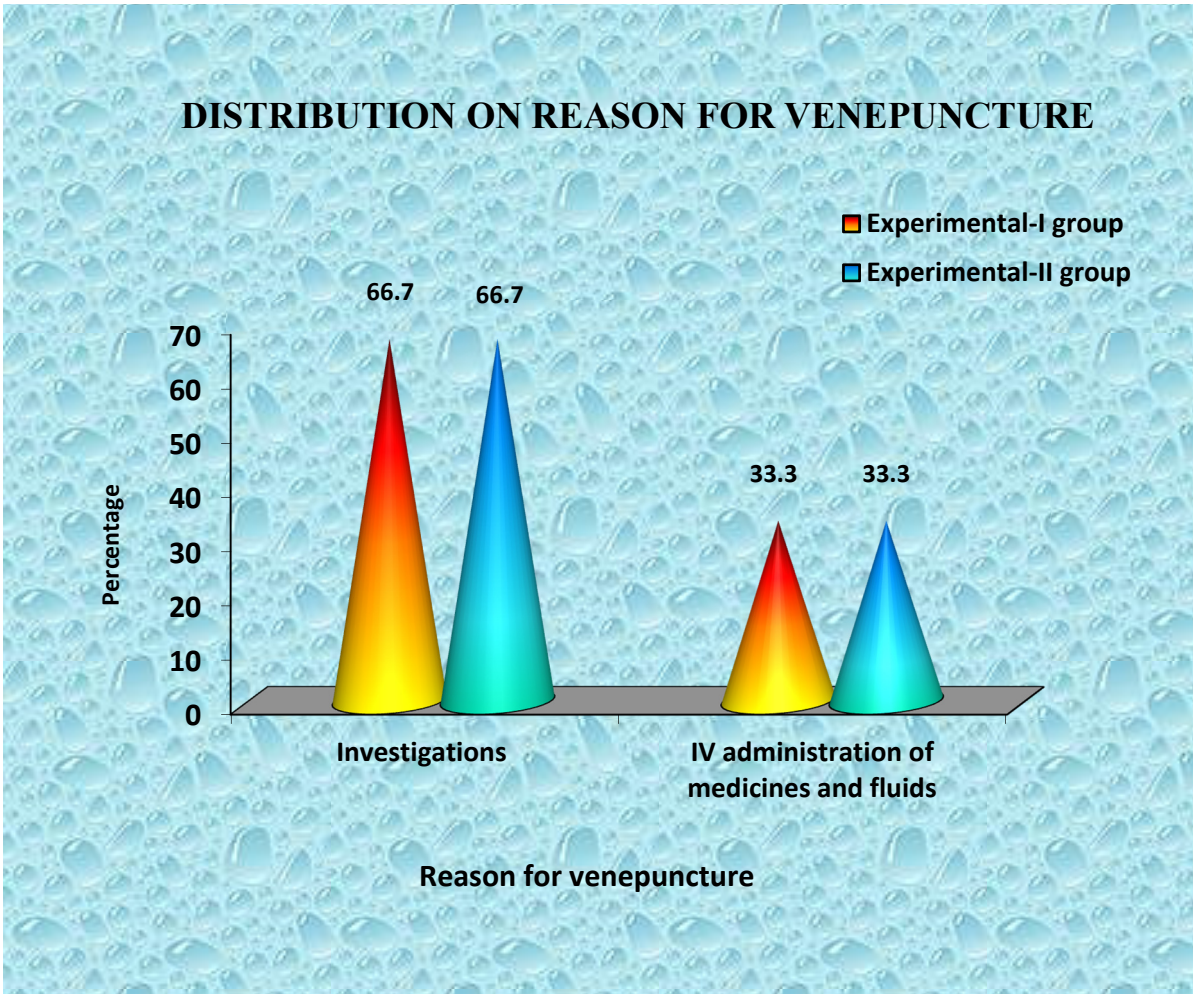


Fig.8. Percentage distribution of children according to their reason for venepuncture in experimental group I and experimental group II

The above cone diagram represents that, in experimental group I, 66.7% had investigations and 33.3% had IV administration of medicines and fluids. In experimental group II, 66.7% had investigations and 33.3% had IV administration of medicines and fluids.

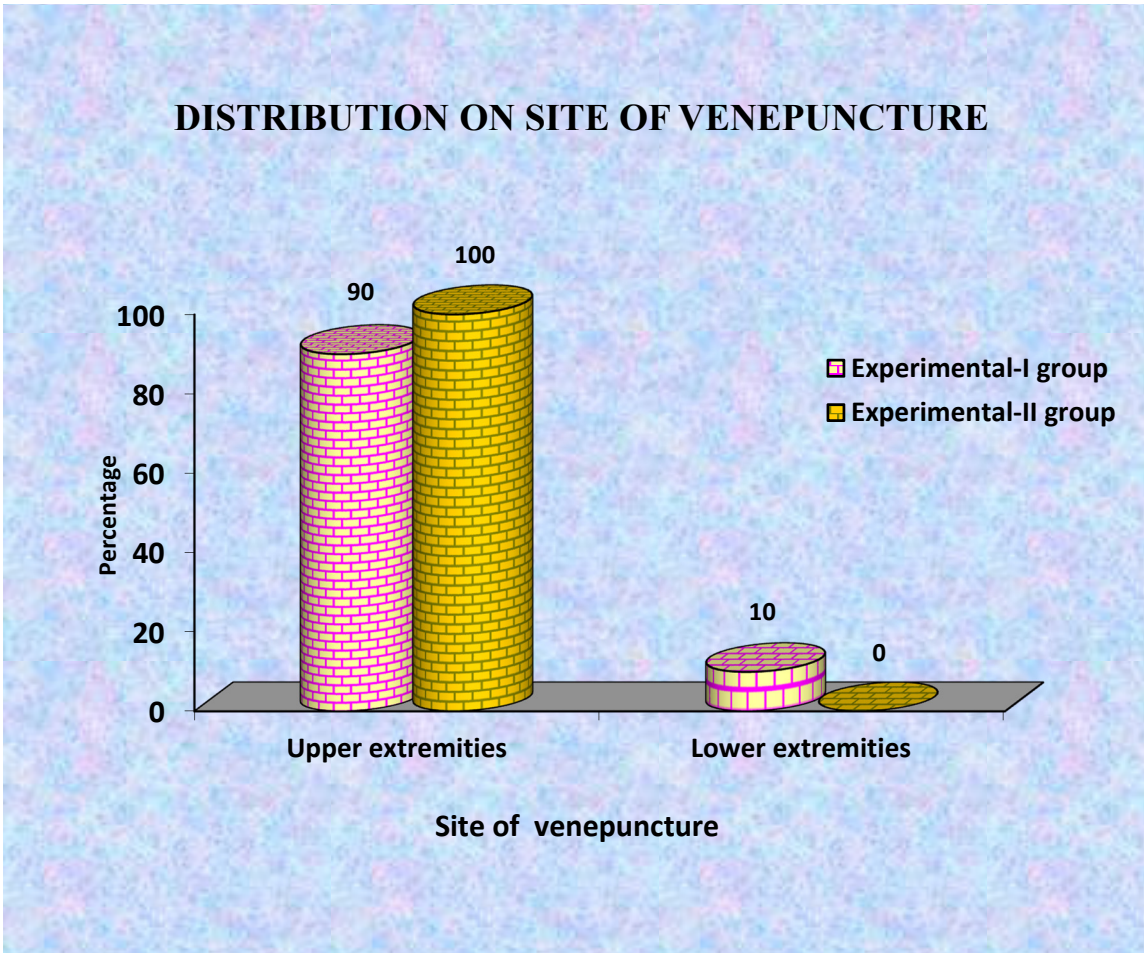


Fig.9. Percentage distribution of children according to their site of venepuncture in experimental group I and experimental group II

The above cylinder diagram represents that in experimental group I, 90% had cannula in upper extremities and 10% had cannula in lower extremities. In experimental group II, 100% had cannula in upper extremities and none had cannula in lower extremities.

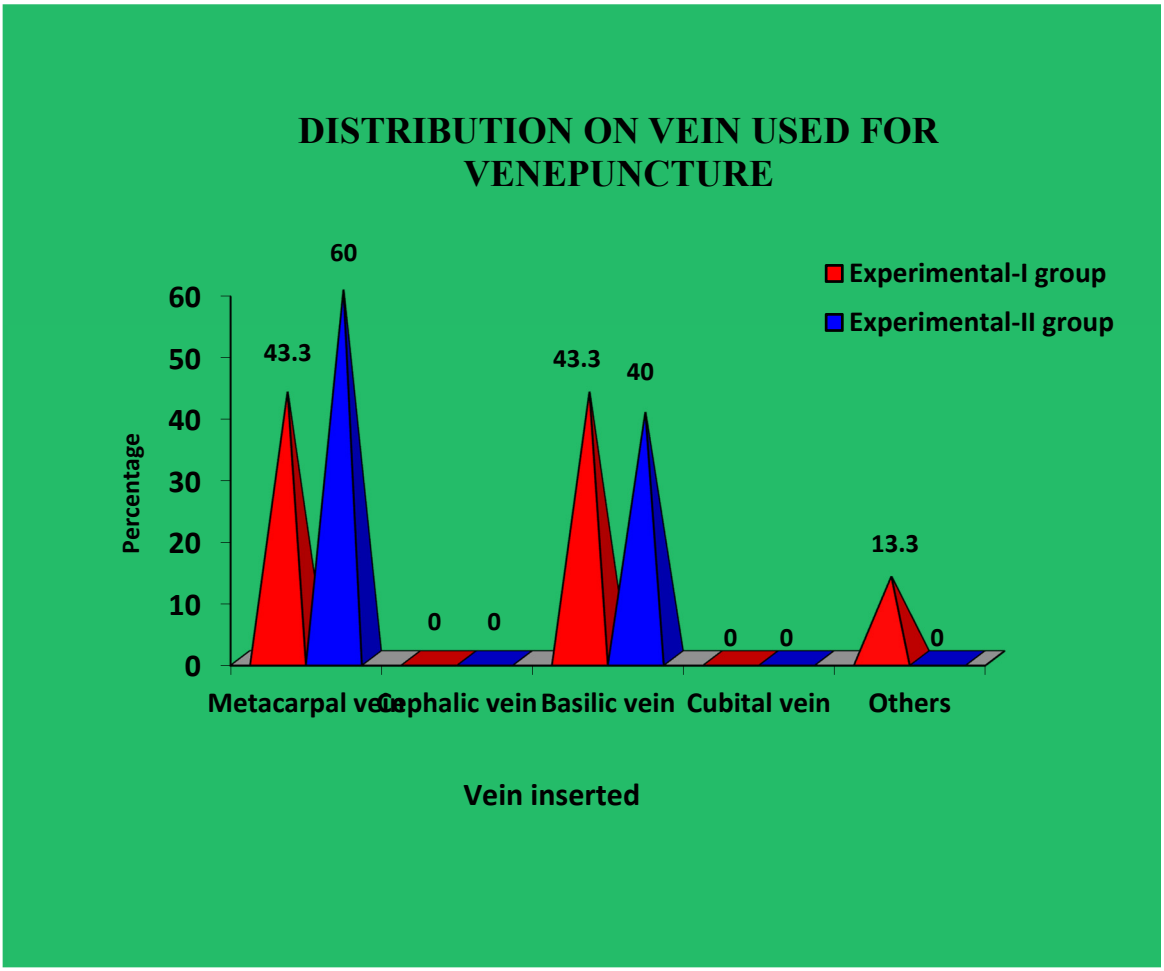


Fig.10. Percentage distribution of children according to their vein used for venepuncture in experimental group I and experimental group II

The above cone diagram represents that, in experimental group I, 43.3% metacarpal vein was punctured, no child had cephalic vein punctured, 43.3% basilic vein was punctured, no child had cubital vein punctured and 13.3% other vein was punctured. In experimental group II, 60% metacarpal vein was punctured, no child had cephalic vein punctured, 40% basilic vein was punctured, no child had cubital vein punctured and no child other vein punctured.

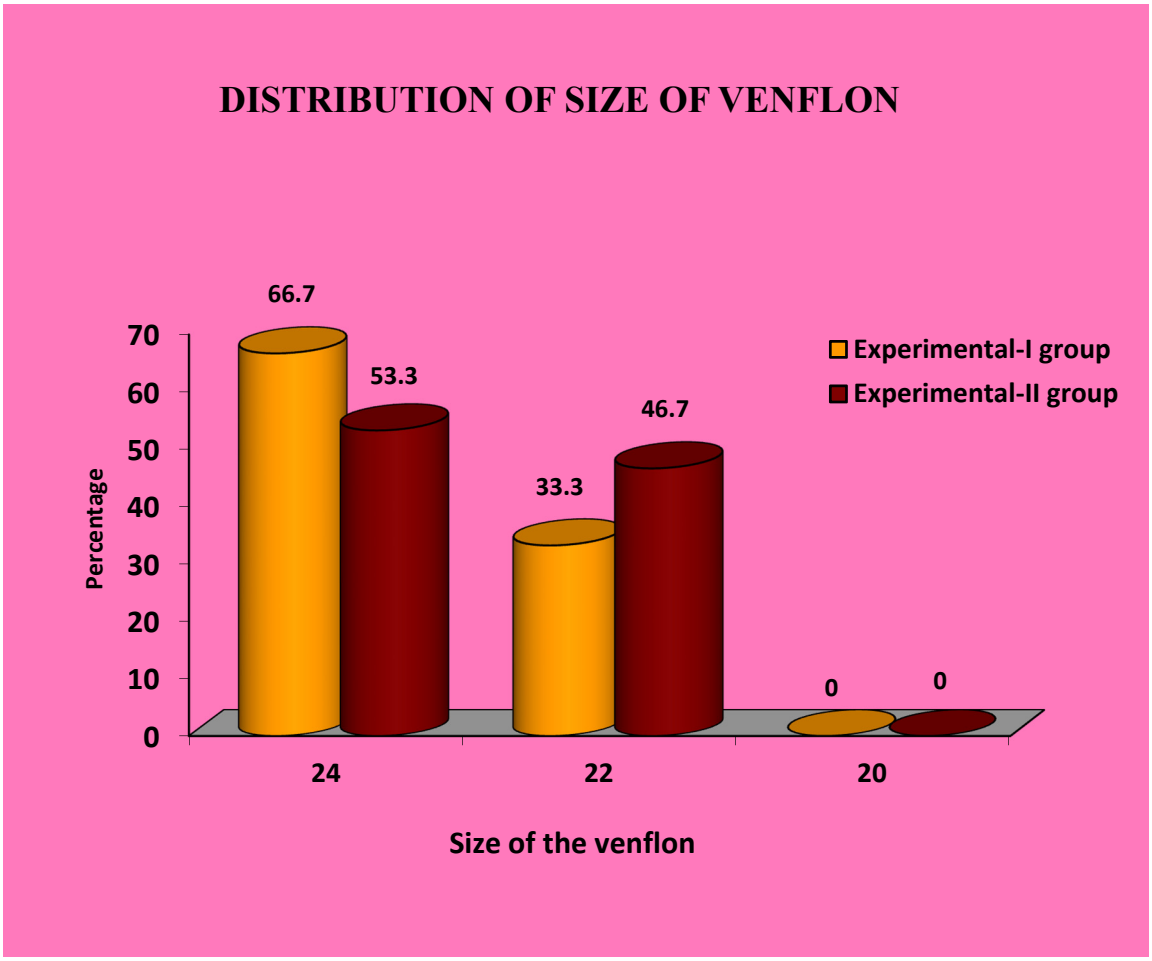


Fig.11. Percentage distribution of children according to their size of the venflon in experimental group I and experimental group II

The above cylinder diagram represents that in experimental group I, 73.3% had 24 gauge sized venflon, 33.3% had 22 gauge sized venflon and none of the children had 20 gauge sized venflon. In experimental group II, 53.3% had 24 gauge sized venflon, 46.7% had 22 gauge sized venflon and none of the children had 20 gauge sized venflon.

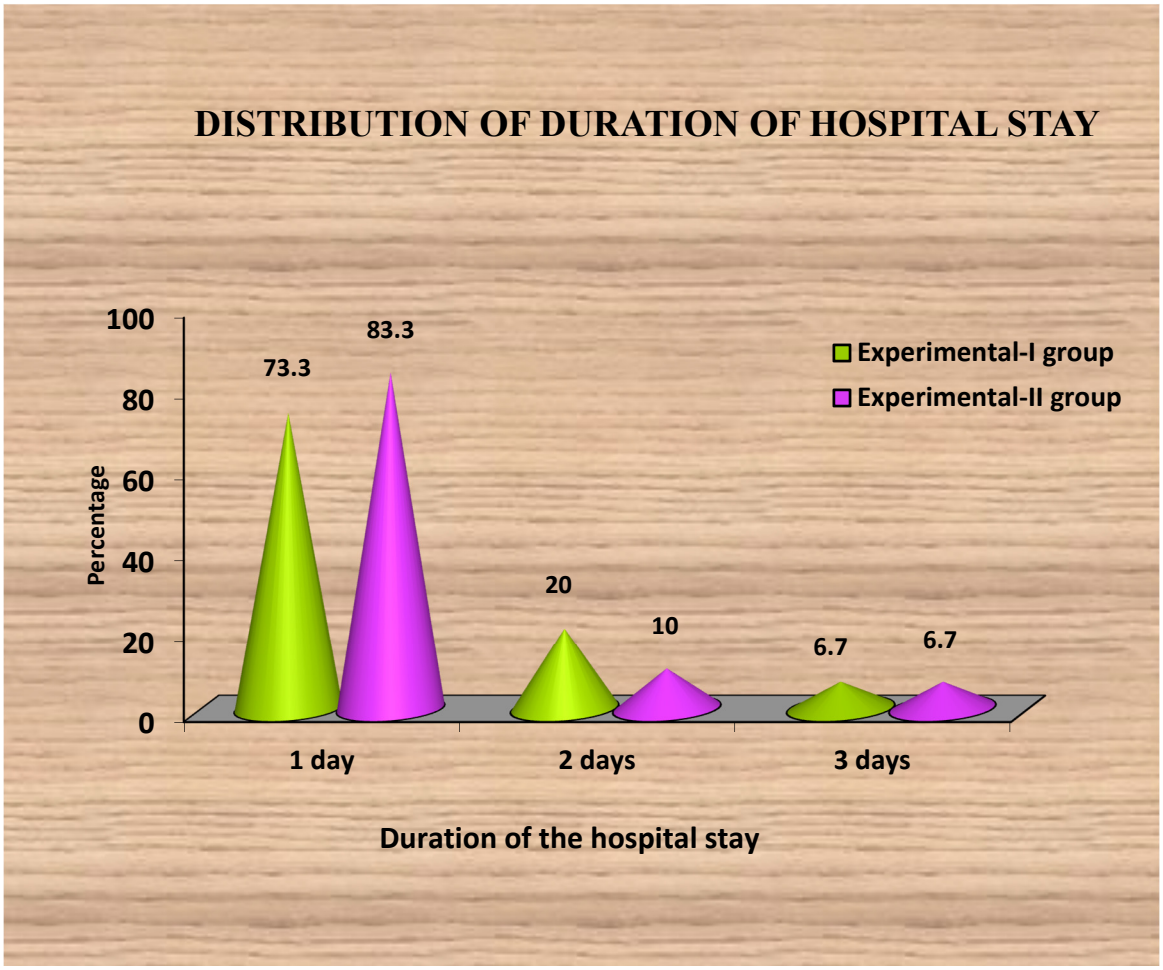


Fig.12. Percentage distribution of children according to their duration of the hospital stay in experimental group I and experimental group II

The above cone diagram represents that, in experimental group I, 73.3% came on 1st day, 20% came on 2nd day and 6.7% came on 3rd day of admission. In experimental group II, 83.3% came on 1st day, 10% came on 2nd day and 6.7% came on 3rd day of admission.

Section II:

Description of level of pain during venepuncture among children in paediatric ward.

Table-3

Frequency and percentage wise distribution level of pain during venepuncture among children in paediatric ward between experimental group I and experimental group II.

n=60

Level of Pain	Experimental –I Group post test		Experimental –II Group post test	
	f	%	f	%
No pain	-	-	-	-
Mild pain	-	-	-	-
Moderate pain	3	10	25	83.3
Severe pain	20	66.7	5	16.7
Very severe pain	7	23.3	-	-
Worst pain	-	-	-	-
Total	30	100	30	100

The above table depicts that in experimental group I, 3 (10%) children had moderate pain, 20 (66.7%) children had severe pain and 7 (23.3%) children had very severe pain. In experimental group II, 25 (83.3%) children had moderate pain, 5 (16.7%) children had severe pain.

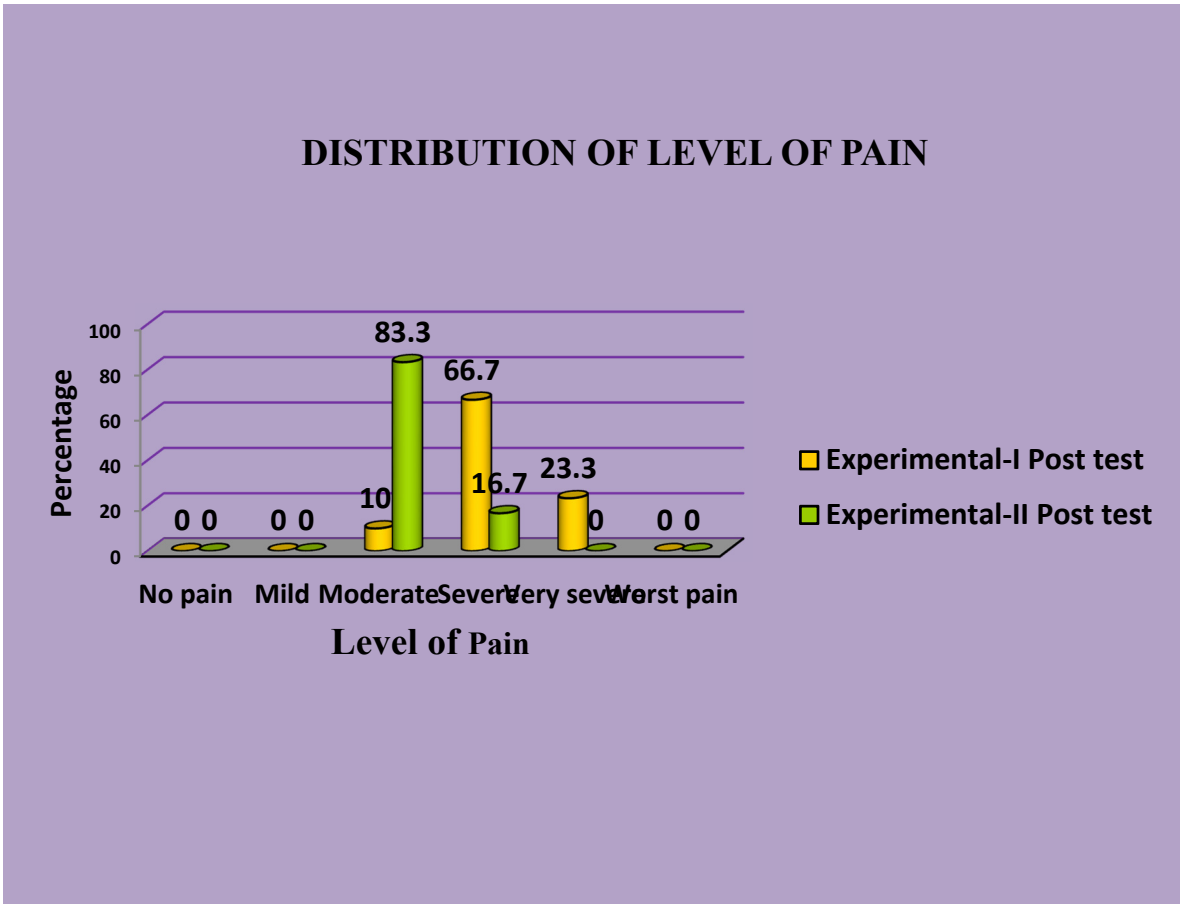


Fig.13. Percentage distribution of level of pain during venepuncture among children in experimental group I and experimental group II

The above cylindrical diagram depicts that in experimental group I, 3 (10%) children had moderate pain, 20 (66.7%) children had severe pain and 7 (23.3%) children had very severe pain. In experimental group II, 25 (83.3%) children had moderate pain, 5 (16.7%) children had severe pain.

Section III

Effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward

Table-4

Mean, SD and mean % of effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward between experimental group I and experimental group II

n=60

Pain	Experimental-I - Post test scores			Experimental-II -Post test scores			Difference in mean%
	Mean	SD	Mean%	Mean	SD	Mean%	
OVERALL	6.07	1.08	61	3.9	1.06	39	22

The above table showed that the mean and standard deviation of experimental group I was 6.07 and 1.08, in experimental group II the mean and standard deviation was 3.9 and 39 respectively. The mean difference of experimental group I and experimental group II was 22.

Table-5

Unpaired "t"-test showing the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward between experimental group I and experimental group II

n=60

Pain	Experimental-I post test		Experimental-II post test		Mean difference	't'-value	P-value
	Mean	SD	Mean	SD			
Overall	6.07	1.08	3.9	1.06	2.17	**7.83**	**P<0.001*** **

*-P<0.05 ,significant and **-P<0.01 &***-P<0.001 , Highly significant

The above table reveals that the post test score of mean and standard deviation of experimental group I was 6.07 and 1.08, in experimental group II the post test score of mean and standard deviation was 3.9 and 39 respectively. The mean difference of experimental group I and experimental group II was 22, the calculated value was 7.83 and the p value is highly significant at 0.001.

Section IV

Association between the level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward with their selected socio-demographic variables and clinical variables.

Table No. 6:

Association between the level of pain during venepuncture among children in experimental group I in paediatric ward with their selected socio-demographic variables and clinical variables.

n=60

Socio demographic and clinical variables	Moderate		Severe		Very severe		$\chi 2$	p-value
	f	%	f	%	F	%		
1.Age(in years):								
3-4 years	**0**	0	4	13.3	4	13.3		
4-5 years	**1**	3.3	10	33.3	1	3.3	6.37	0.174
5-6 years	**2**	6.7	6	20	2	6.7		
2.Gender :								
Male	2	6.7	10	33.3	5	16.7	1.105	0.575
Female	1	3.3	10	33.3	2	6.7		
3.Residence:								
Rural	2	6.7	14	46.7	3	10	1.66	0.436
Urban	1	3.3	6	20	4	13.3		
4.Religion:								
Hindu	3	10	16	53.3	6	20		
Christian	0	0	4	13.3	0	0	5.42	0.247
Muslim	0	0	0	0	1	3.3		
Others	0	0	0	0	0	0		

Socio demographic and clinical variables	Moderate		Severe		Very severe		$\chi 2$ (df)	P value (N/NS)
	f	%	f	%	f	%		
5.Educational status:								
Kindergarten	1	3.3	11	36.7	0	0		
Primary	1	3.3	7	23.3	5	16.7	7.25	0.123
Not yet Joined school	1	3.3	2	6.7	2	6.7		
6.Family member with the child during venepuncture:								
Parents	3	10	19	63.3	7	23.3	0.52	0.772
Grand parents	0	0	1	3.3	0	0		
Others	0	0	0	0	0	0		
7.Child's reaction towards health professional:								
Attaches few minutes	2	6.7	10	33.3	4	13.3	1.205	0.877
Aggressive behavior	1	3.3	5	16.7	2	6.7		
Fear and avoidance	0	0	5	16.7	1	3.3		
8.Reason for venepuncture :								
Investigations	2	6.7	13	43.3	5	16.7	0.09	0.953
IV administration of medicines and fluids	1	3.3	7	23.3	2	6.7		
9.Site of venepuncture :								
Upper extremities	3	10	19	63.3	5	16.7	3.57	0.168
Lower extremities	0	0	1	3.3	2	6.7		
10.Vein used for venepuncture:								
Metacarpal vein	2	6.7	8	26.7	3	10		
Cephalic vein	0	0	0	0	0	0	2.84	0.585
Basilic vein	1	3.3	10	33.3	2	6.7		
Cubital vein	0	0	0	0	0	0		
Others	0	0	2	6.7	2	6.7		
11.Size of the venflon :								
24	2	6.7	13	43.3	5	16.7		
22	1	3.3	7	23.3	2	6.7	0.094	0.953
20	0	0	0	0	0	0		
12.Duration of hospital stay :								
1 day	2	6.7	15	50	5	16.7	1.803	0.772
2 days	1	3.3	3	10	2	6.7		
3 days	0	0	2	6.7	0	0		

The above table reveals that in experimental group I, there is no significant association between the post test level of pain during venepuncture and socio-demographic variables such as age, gender, residence, religion, educational status, family member with the child during venepuncture, child's reaction towards the health professional, reason for venepuncture, site of venepuncture, vein inserted, size of the venflon and duration of hospital stay.

Table No. 7

Association between the level of pain during venepuncture among children in experimental group II in paediatric ward with their selected socio-demographic variables and clinical variables.

n=60

Socio demographic and clinical variables	Moderate		Severe		χ2 (df)	p-value (N/NS)
	f	%	f	%		
1.Age(in years):						
3-4 years	6	20	2	6.7		
4-5 years	9	30	1	3.3	0.72	0.698
5-6 years	10	33.3	2	6.7		
2.Gender :						
Male	18	60	4	13.3	0.136	0.712
Female	7	23.3	1	3.3		
3.Residence:						
Rural	17	56.7	1	3.3	4.0	**0.046***
Urban	8	26.7	4	13.3		
4.Religion:						
Hindu	25	83.3	4	13.3		
Christian	0	0	1	3.30	5.17	
Muslim	0	0	0	0		**0.23***
Others	0	0	0	0		
5.Educational status:						
Kindergarten	10	33.3	2	6.7		
Primary	11	36.7	2	6.7	0.06	0.973
Not yet Joined school	4	13.3	1	3.3		
6.Family member with the child during venepuncture:						
Parents	24	80	4	13.3	1.71	0.190
Grand parents	1	3.3	1	3.3		
Others	0	0	0	0		
7.Child's reaction towards health professional:						
Attaches few minutes	18	60	3	10	1.71	0.424
Aggressive behavior	6	20	1	3.3		
Fear and avoidance	1	3.3	1	3.3		

Socio demographic and clinical variables	Moderate		Severe		χ2 (df)	p-value (N/NS)
	f	%	f	%		
8.Reason for venepuncture :						
Investigations	18	60	2	6.7	1.92	0.166
IV administration of medicines and fluids	7	23.3	3	10		
9.Site of venepuncture :						
Upper extremities	25	83.3	5	16.7	0	1
Lower extremities	0	0	0	0		
10.Vein used for venepuncture:						
Metacarpal vein	15	50	3	10		
Cephalic vein	0	0	0	0	0	1
Basilic vein	10	33.3	2	6.7		
Cubital vein	0	0	0	0		
Others	0	0	0	0		
11.Size of the venflon :						
24	12	40	4	13.3		
22	13	43.3	1	3.3	1.71	0.190
20	0	0	0	0		
12.Duration of hospital stay :						
1 day	21	70	4	13.3	1.008	0.604
2 days	2	6.7	1	3.3		
3 days	2	6.7	0	0		

NS-Not significant ,S-significant.

The above table reveals that in experimental group II, there is significant association between the post test level of pain during venepuncture and socio-demographic variables such as residence and religion. There is no significant association between the post test level of pain during venepuncture and socio-demographic variables such as age, gender, educational status, family member with the child during venepuncture, child's reaction towards the health professional, reason for venepuncture, site of venepuncture, vein inserted, size of the venflon and duration of hospital stay.

Discussion

CHAPTER V

DISCUSSION

"Discussion is an exchange of knowledge; an argument an exchange of ignorance"

- **Robert Quillen**

This chapter discusses in detail the findings of the study based on the interpretation of the statistical analysis in relation to the objectives of the study. Pain is the unpleasant sensory stimulation, especially in children. It will shape their behaviour in the future. The pain in children was underestimated and untreated in many clinical settings. The role of nurses is very important role in managing the pain in children during invasive procedures. It helps the child to develop confidence, cooperation and to reduce the anxiety during hospitalization and during procedures. The family also needs to manage the child during the painful procedures.

Health care professionals as such should have to set the responsibility to reduce the pain and anxiety as much as possible. A non-pharmacological procedure shows very effective n managing the pain. Hence, this study was undertaken to determine the effectiveness of cryotherapy on pain during venepuncture among children for different durations at 15 seconds and 30 seconds. The tool used for data collection was validated by the experts. Reliability of the tool was assessed by using inter rater reliability correlation coefficient. The instrument was found to be reliable. The purpose of the study is to evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward, Government Rajaji Hospital, Madurai.

The objective of the study were,

- To evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in experimental group I and experimental group II in paediatric ward Government Rajaji Hospital, Madurai.
- To associate the level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward with their selected socio demographic variables and clinical variables.

The following hypotheses were set for the study

All the hypotheses were tested at 0.05 level of significance.

H_1: There is a significant difference in the post test level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward, Government Rajaji Hospital, Madurai.

H_2: There is a significant association between the level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward with their selected socio-demographic variables and clinical variables.

5.1 Socio demographic details of the study

Considering the age wise distribution of children in experimental group I, 8 (26.7%) children were in 3-4 years of age, 12 (40%) children were in 4-5 years of age and 10 (33.3%) children were in 5-6 years of age. In experimental group II, 8 (26.7%) children were in 3-4 years of age, 10 (33.3%) children were in 4-5 years of age and 12 (40%) children were in 5-6 years of age.

Regarding sex wise distribution in experimental group I, 17 (56.7%) children were males and 13 (43.3%) children were females. In experimental group II, 22 (73.3%) children were males and 8 (26.7%) children were females.

With respect to area of residence in experimental group I, 19 (63.3%) children were residing in rural area and 11 (36.7%) children were residing in urban area. In experimental group II, 18 (60%) children were residing in rural area and 12 (40%) children were residing in urban area.

Based on the religion in experimental group I, 25 (83.3%) children were hindus, 4 (13.3%) children were christians, 1 (3.3%) child was muslim and none were of other religion. In experimental group II, 29 (96.7%) children were hindus, 1 (3.3%) child was christian, none were muslims and other religion.

Considering the educational status in experimental group I, 12 (40%) children were studying kindergarten, 13 (43.3%) children were studying primary school and 5 (16.7%) children had not yet joined school. In experimental group II, 12 (40%) children were studying kinder garden, 13 (43.3%) children were studying primary school and 5 (16.7%) children had not yet joined school.

With the view of family member with the child during venepuncture in experimental group I, 29 (96.7%) children came with their parents, 1 (3.3%) child came with his grandparent and none came with other relatives. In experimental group II, 28 (93.3%) children came with their parents, 2 (6.7%) children came with their grandparents and none came with other relatives.

On the basis of child's reaction towards health professional in experimental group I, 16 (53.3%) children got attached in few minutes, 8 (26.7%) children behaved aggressive and 6 (20%) children had fear and avoidance. In experimental group II, 21 (70%) children got attached in few minutes, 7 (23.3%) children behaved aggressive and 2 (6.7%) children had fear and avoidance.

Based on the reason for venepuncture in experimental group I, 20 (66.7%) children had investigations and 10 (33.3%) children had IV administration of medicines

and fluids. In experimental group II, 20 (66.7%) children had investigations and 10 (33.3%) children had IV administration of medicines and fluids.

Regarding on the site of venepuncture in experimental group I, 27 (90%) children had cannula in upper extremities and 3 (10%) children had cannula in lower extremities. In experimental group II, 30 (100%) children had cannula in upper extremities and none had cannula in lower extremities.

Considering the vein inserted in experimental group I, for 13 (43.3%) children metacarpal vein was punctured, no child had cephalic vein punctured, for 13 (43.3%) children basilic vein was punctured, no child had cubital vein punctured and for 4 (13.3%) children other vein was punctured. In experimental group II, for 18 (60%) children metacarpal vein was punctured, no child had cephalic vein punctured, 12 (40%) children basilic vein was punctured, no child had cubital vein punctured and no child other vein punctured.

On the basis of size of the venflon in experimental group I, 20 (73.3%) children had 24 guage sized venflon, 10 (33.3%) children had 22 gauge sized venflon and none of the children had 20 gauge sized venflon. In experimental group II, 16 (53.3%) children had 24 gauge sized venflon, 14 (46.7%) children had 22 gauge sized venflon and none of the children had 20 gauge sized venflon.

Regarding the duration of hospital stay in experimental group I, 22 (73.3%) children came on 1st day, 6 (20%) children came on 2nd day and 2 (6.7%) children came on third day of admission. In experimental group II, 25 (83.3%) children came on 1st day, 3 (10%) children came on 2nd day and 2 (6.7%) children came on third day of admission.

5.2 Discussion of the study based on its objectives

The first objective was to evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in experimental group I and experimental group II in paediatric ward Government Rajaji Hospital, Madurai.

The present study result revealed that, in experimental group I, 3 (10%) children had moderate pain, 20 (66.7%) children had severe pain and 7 (23.3%) children had very severe pain. In experimental group II, 25 (83.3%) children had moderate pain, 5 (16.7%) children had severe pain.

The unpaired‘t’ test value showed statistically significant reduction in the level of pain during venepuncture among children ($t=7.83$ and $p<0.001$), which was highly significant. The post test score of mean and standard deviation of experimental group I was 6.07 and 1.08, in experimental group II the post test score of mean and standard deviation was 3.9 and 39 respectively. The mean difference of experimental group I and experimental group II was 22, the calculated value was 7.83 and the p value is highly significant at 0.001. The experimental group II post test level of pain was lower than that level, the calculated value was more than the table value, and indicate that cryotherapy for 30 seconds was effective in reducing the level of pain among children in paediatric ward.

This study was consistent with the study conducted by Fadeelah Mansour Ahmed, Awatef El Sayed Ahmad , Hoda Mohamed Nafee El Sayed, (2016), to identify Pain intensity after an ice pack application prior to venepuncture among school-age children. Fifty (50) school-age children aged from 6-12 years. The study concluded that the application of an ice pack prior to vein puncture procedure was effective in reducing

pain intensity among school age children and it recommended that application of an ice pack has to be a part of the routine care of all children admitted to venepuncture procedure, so educational course related the ice back storage, uses and its application time over the vein puncture site should be conducted.

Thus the hypotheses- H_1 "There is a significant difference in the post test level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward, Government Rajaji Hospital, Madurai." was accepted.

The second objective was to associate the level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward with their selected socio demographic variables.

Statistical significance was calculated by using Chi square test. The study result revealed that, in experimental group II, there is significant association between the post test level of pain during venepuncture and socio-demographic variables such as residence (χ^2= 0.046) and religion (χ^2= 0.023).

This findings was supported by the study conducted by Tariq Mustafa Al–Abbass, Raghad Hussein Abdelkader, Noordeen Shoqirat and Hala Obeidat, (2016), to examine the effect of parental presence in decreasing pain level among 102 children aged between 4 to 9 years at the emergency department of paediatric hospital in Amman, Jordan. Result showed that the mean pain level in all children pre venepuncture was (0.8); the mean pain level in the control group during venepuncture was (3.3) and post venepuncture it was (1.97), higher than the mean of pain level in the experimental group, which was (2.4) during and (1) post venepuncture ($p <. 05$). Parental presence had a significant impact on decreasing pain levels in children during

venepuncture. The study recommended for policy on allowing parental presence during invasive procedures.

Thus the hypotheses- H_2 "There is a significant association between the level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward with their selected socio-demographic variables." was accepted.

Summary, Conclusion, Implications & Recommendations

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATIONS AND RECOMMENDATIONS

"When You Do The Common Things In Life In An Uncommon Way, You Will Command The Attention Of The World"

- **George Washinton Carver**

This chapter deals about the summary of the findings, conclusion, implication and recommendation.

6.1 Summary of the study

The investigator conducted the study to evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward, Government Rajaji Hospital, Madurai.

Pain is one of the most frequent complaints presented in paediatric settings. Relief of pain is a basic need and right of all children. Nurses are in a unique position to improve the management of children's pain; because children and parents will often tell them things they do not tell physicians and they are often the professionals who have the most contact with an ill child in and out of the hospital.

The statement of the study

"A study to evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in paediatric ward, Government Rajaji Hospital, Madurai."

The following objectives were set for the study

- To evaluate the effectiveness of cryotherapy for 15 seconds Vs 30 seconds on pain during venepuncture among children in experimental group I and experimental group II in paediatric ward Government Rajaji Hospital, Madurai.
- To associate the level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward with their selected socio demographic variables and clinical variables.

The following hypotheses were tested at 0.05 level;

H_1: There is a significant difference in the post test level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward, Government Rajaji Hospital, Madurai.

H_2: There is a significant association between the level of pain during venepuncture among children in experimental group I and experimental group II in paediatric ward with their selected socio-demographic variables and clinical variables.

The study was based on the assumption that

All children during venepuncture will experience a different level of pain.

The variables studied were

Independent Variable : Cryotherapy

Dependent variable : Pain during venepuncture

Extensive literature review and studies from primary and secondary focus regarding the effects of cryotherapy for 15 seconds and 30 seconds on pain during venepuncture among children provided evidence based guidance for the study. This has helped to design the methodology, develop the tool for data collection and the protocol

for administering cryotherapy. A modified Widenbach's Helping art theory (1964) was formulated which provided a useful means in assessing the pain level during venepuncture among children. The research approach used in the study was a quantitative approach and design was True experimental post test only design. The sampling technique was consecutive sampling technique. The total sample size was 60 (30 in experimental group and 30 in control group). A pilot study was conducted on ten samples to find out the appropriateness and feasibility of conducting the study and it was found feasible.

The data collection was done for a period of six weeks from 19-03-2017 to 30-04-2017 in paediatric ward, Institute of Child Health and Research Centre, Government Rajaji Hospital, Madurai. Formal permission was obtained from the Director of the Institute and Head of the Department of Paediatric Surgery in Institute of Child Health and Research Centre, at Government Rajaji Hospital, Madurai.

The content validity and reliability was obtained prior to the study. Children in the experimental group I was given 15 seconds cryotherapy. Children in the experimental group II was given 30 seconds cryotherapy. At the end the child's level of pain during venepuncture was assessed using Wong Baker's pain assessment scale. The data were analysed by descriptive and inferential statistics.

Descriptive (percentage distribution, mean, standard deviation) and inferential statistics (t-test, chi square test) were used to analyse the data and to test hypothesis. The data were then interpreted and discussed based on the objectives of the study, hypotheses and relevant studies from the literature reviewed.

6.2 Major findings of the study

Considering the age wise distribution of children in experimental group I, 8 (26.7%) children were in 3-4 years of age, 12 (40%) children were in 4-5 years of age

and 10 (33.3%) children were in 5-6 years of age. In experimental group II, 8 (26.7%) children were in 3-4 years of age, 10 (33.3%) children were in 4-5 years of age and 12 (40%) children were in 5-6 years of age.

Regarding sex wise distribution in experimental group I, 17 (56.7%) children were males and 13 (43.3%) children were females. In experimental group II, 22 (73.3%) children were males and 8 (26.7%) children were females.

With respect to area of residence in experimental group I, 19 (63.3%) children were residing in rural area and 11 (36.7%) children were residing in urban area. In experimental group II, 18 (60%) children were residing in rural area and 12 (40%) children were residing in urban area.

Based on the religion in experimental group I, 25 (83.3%) children were hindus, 4(13.3%) 4 children were christians, (3.3%) 1 child was muslim and none were of other religion. In experimental group II, (96.7%) 29 children were hindus, (3.3%) 1 child was christian, none were muslims and of other religion.

Considering the educational status in experimental group I, (40%) 12 children were studying kindergarden, (43.3%) 13 children were studying primary school and (16.7%) 5 children had not yet joined school. In experimental group II, (40%) 12 children were studying kinder garden, (43.3%) 13 children were studying primary school and (16.7%) 5 children had not yet joined school.

With the view of family member with the child during venepuncture in experimental group I (96.7%) 29 children came with their parents, (3.3%) 1 child came with his grandparent and none came with other relatives. In experimental group II (93.3%) 28 children came with their parents, (6.7%) 2 children came with their grandparents and none came with other relatives.

On the basis of child's reaction towards health professional in experimental group I (53.3%) 16 children got attached in few minutes, (26.7%) 8 children behaved aggressive and (20%) 6 children had fear and avoidance. In experimental group II (70%) 21 children got attached in few minutes, (23.3%) 7 children behaved aggressive and (6.7%) 2 children had fear and avoidance.

Based on the reason for venepuncture in experimental group I (66.7%) 20 children had blood drawn for investigations and (33.3%) 10 children had IV administration of medicines and fluids. In experimental group II (66.7%) 20 children had investigations and (33.3%) 10 children had IV administration of medicines and fluids.

Regarding on the site of venepuncture in experimental group I (90%) 27 children had cannula in upper extremities and (10%) 3 children had cannula in lower extremities. In experimental group II (100%) 30 children had cannula in upper extremities and none had cannula in lower extremities.

Considering the vein inserted in experimental group I (43.3%) children metacarpal vein was punctured, no child had cephalic vein punctured, (43.3%) children basilic vein was punctured, no child had cubital vein punctured and (13.3%) children other vein was punctured. In experimental group II (60%) children metacarpal vein was punctured, no child had cephalic vein punctured, (40%) children basilic vein was punctured, no child had cubital vein punctured and no child other vein punctured.

On the basis of size of the venflon in experimental group I (73.3%) children had 24 guage sized venflon, (33.3%) children had 22 gauge sized venflon and none of the children had 20 gauge sized venflon. In experimental group II (53.3%) 16 children

had 24 gauge sized venflon, (46.7%) 14 children had 22 gauge sized venflon and none of the children had 20 gauge sized venflon.

Regarding the duration of hospital stay in experimental group I (73.3%) 22 children came on 1st day, (20%) 6 children came on 2nd day and (6.7%) 2 children came on third day of admission. In experimental group II (83.3%) 25 children came on 1st day, (10%) 3 children came on 2nd day and (6.7%) 2 children came on third day of admission.

In experimental group I (10%) 3 children had moderate pain, (66.7%) 20 children had severe pain and (23.3%) 7 children had very severe pain. In experimental group II (83.3%) 25 children had moderate pain, (16.7%) 5 children had severe pain.

The post test score of mean and standard deviation of experimental group I was 6.07 and 1.08, in experimental group II the post test score of mean and standard deviation was 3.9 and 39 respectively. The mean difference of experimental group I and experimental group II was 22, the calculated value was 7.83 and the p value is highly significant at 0.001.

In experimental group I, there was no significant association between the post test level of pain during venepuncture and selected socio demographic variables such as age, gender, religion, educational status of the child, family member with the child during venepuncture, child's reaction towards health professional, reason for venepuncture, site of venepuncture, vein inserted, size of the venflon and duration of hospital stay.

In experimental group II, there was significant association between the post test level of pain during venepuncture and selected socio demographic variables such as residence (χ^2= 0.046) and religion (χ^2= 0.023).

6.3 Conclusion

The study findings statistically proved that the cryotherapy for 30 seconds reduces the level of pain than cryotherapy for 15 seconds among children. So the researcher concluded that it can be used as an effective intervention to reduce the level of pain among children in paediatric ward.

6.4 Implications of the study

The implications drawn from the study are of vital concern to the field of Nursing including Nursing service, Nursing education, Nursing research and Nursing administration.

Nursing Practice

- ✓ Nurse is the primary care giver and having responsibility in applying the holistic approach while giving the care to the patient. Cryotherapy should be included as a part of nursing care.
- ✓ The study finding will help the nursing personnel to manage the pain in children during invasive procedures.
- ✓ Cryotherapy should be made as routine procedure in ward settings.

Nursing Education

Nursing is an evolving profession every practice is based on evidence based care with adequate knowledge.

- ✓ The nurse educator may teach about the cryotherapy, it is effective and easy to administer.

- ✓ Nurse educators may be provided in-service education regarding benefits non-pharmacological methods (especially cryotherapy) of pain management.
- ✓ Nurse educator can conduct symposium, seminars regarding the effect of the cryotherapy in pain management in children.

Nursing Research

- ✓ Help the nursing researcher to focus and develop insight on the cryotherapy.
- ✓ To do further researches during invasive procedures.
- ✓ The organization and management may motivate the researchers to find various types of non- pharmacological therapies in children on the basis of cost effectiveness.

Nursing Administration

- ✓ The nurse administrator may prepare the protocol for non-pharmacological therapies especially for the children who are admitted into the hospitals.
- ✓ The nurse administrator may teach about the effectiveness of cryotherapy in pain management among the children.

6.5 Recommendations

- ❖ A similar study can be conducted for all types of invasive procedures.
- ❖ The same study can be conducted in larger groups in different setting.
- ❖ Comparison study can be done by various non- pharmacological therapies.

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Appendices

APPENDIX I

Letter seeking and granting permission to conduct the study in Paediatric ward, Madurai Rajaji Hospital, Madurai

From

R.Abishak,
II year M.Sc (N), Child Health Nursing,
College of Nursing,
Madurai Medical College, Madurai – 20.

To

The Director,
Institute of Child Health and Research Centre,
Government Rajaji Hospital,
Madurai Medical College,
Madurai.

Through

The Proper Channel

Respected Sir,

Sub: College of Nursing, Madurai Medical College, Madurai – M.Sc.(N) II year Child Health Nursing Student – Permission to conduct dissertation study– request – regarding.

****

As per the Indian Nursing Council and the Tamil Nadu Dr. M.G.R. Medical University curriculum requirement all branches of M.Sc Nursing candidates are required to conduct a dissertation study for the partial fulfillment of the P.G Degree course in their respective departments.

I have selected a study topic **"A study to evaluate the effectiveness cryotherapy for 15 seconds vs 30 seconds on pain during venepuncture among children in pediatric ward, Government Rajaji Hospital, Madurai."** for my dissertation study.

Hence, I kindly request you to consider my requisition and permit me to conduct the study.

Thanking you,

Yours obediently,

Date: 07/02/2017

Madurai

Permitted.
07/02/2017

R. Abishak

(R.ABISHAK)

DIRECTOR
INSTITUTE OF CHILD HEALTH &
RESEARCH CENTRE
GOVT. RAJAJI HOSPITAL
MADURAI-625020

APPENDIX II

ETHICAL COMITTEE APPROVAL LETTER

MADURAI MEDICAL COLLEGE
MADURAI, TAMILNADU, INDIA -625 020
(Affiliated to The Tamilnadu Dr.MGR Medical University, Chennai, Tamil Nadu)

Prof Dr V Nagaraajan MD MNAMS DM (Neuro) DSc.,(Neurosciences) DSc (Hons)
Professor Emeritus in Neurosciences, Tamil Nadu Govt Dr MGR Medical University
Chairman, IEC

Dr.M.Shanthi, MD.,
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Professor of Pharmacology,
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Members

1. Dr.K.Meenakshisundaram, MD (Physiology)Vice Principal, Madurai Medical College

2. Dr.Sheela Mallika rani, M.D., Anaesthesia , Medical Superintendent Govt. Rajaji Hosptial, Maudrai

3.Dr.V.T.Premkumar,MD(General Medicine) Professor & HOD of Medicine, Madurai Medical & Govt. Rajaji Hospital, College, Madurai.

4.Dr.D.Maruthupandian, MS., Professor & H.O.D. Surgery, Madurai Medical College & Govt. Rajaji Hosptial, Madurai.

5.Dr.G.Meenakumari, MD., Professor of Pathology, Madurai Medical College, Madurai

6.Mrs.Mercy Immaculate Rubalatha, M.A., B.Ed., Social worker, Gandhi Nagar, Madurai

7.Thiru.Pala.Ramasamy, B.A.,B.L., Advocate, Palam Station Road, Sellur.

8.Thiru.P.K.M.Chelliah, B.A., Businessman,21, Jawahar Street, Gandhi Nagar, Madurai.

ETHICS COMMITTEE CERTIFICATE

Name of the Candidate	:	R.Abishak
Course	:	M.Sc., Nursing (Child Health Nursing)
Period of Study	:	2015 - 2017
College	:	MADURAI MEDICAL COLLEGE
Research Topic	:	Effectiveness of cryotherapy for 15 seconds vs 30 seconds on pain during venepuncture among children in paediatric ward, Govt. Rajaji Hospital, Madurai.
Ethical Comrnittee as on	:	08.02.2017

The Ethics Committee, Madurai Medical College has decided to inform that your Research proposal is accepted.

Member Secretary Chairman Dean / Convenor

Prof Dr V Nagaraajan
M.D., MNAMS, D.M., Dsc.,(Neuro), Dsc (Hon)
CHAIRMAN
IEC - Madurai Medical College
Madurai

Madurai Medical College
Madurai-20

APPENDIX III

CERTIFICATE OF VALIDATION

This is to certify that the tool,

Section A: Socio-demographic data

Section B: Wong Baker's pain assessment scale

Prepared by Ms.R.Abishak II Year M.Sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field titled of **"EFFECTIVENESS OF CRYOTHERAPY FOR 15 SECONDS VS 30 SECONDS ON PAIN DURING VENEPUNCTURE AMONG CHILDREN IN PEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI."** has been validated by me.

SIGNATURE OF THE EXPERT:

DESIGNATION:

DIRECTOR
INSTITUTE OF CHILD HEALTH &
RESEARCH CENTRE
GOVT. RAJAJI HOSPITAL
MADURAI-625020

NAME: Dr. K MATHIARASAN. M.D.D.C.H

DATE:

CERTIFICATE OF VALIDATION

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SIGNATURE OF THE EXPERT:

Dr. B. HEMANTHKUMAR, M.S.,M.Ch.,
Professor & HOD
Dept. of Paediatric Surgery
Govt. Rajaji Hospital &
Madurai Medical College, Madurai-20

DESIGNATION:

NAME:

DATE: 03/3/2017

CERTIFICATE OF VALIDATION

This is to certify that the tool,

Section A: Socio-demographic data

Section B: Wong Baker's pain assessment scale

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SIGNATURE OF THE EXPERT: 02/03/17

PRINCIPAL
MADURAI APOLLO COLLEGE OF NURSING
ELIYARPATHI VILLAGE
MADURAI SOUTH TALUK, MADURAI-22.

DESIGNATION: Principal

NAME: Dr. A. Helen M Berclita

DATE: 02/03/17

CERTIFICATE OF VALIDATION

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N. Jessie

SIGNATURE OF THE EXPERT:

NAME: Dr. N. JESSIE. M.Sc., Ph.D. (N).,

DESIGNATION: PROFESSOR.
CSI JEYARAJ ANNAPACKIAM
COLLEGE OF NURSING,
MADURAI.

DATE:

CERTIFICATE OF VALIDATION

This is to certify that the tool,

Section A: Socio-demographic data

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Prepared by Ms.R.Abishak II Year M.Sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field titled of **"EFFECTIVENESS OF CRYOTHERAPY FOR 15 SECONDS VS 30 SECONDS ON PAIN DURING VENEPUNCTURE AMONG CHILDREN IN PEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI."** has been validated by me.

SIGNATURE OF THE EXPERT:

NAME: R. Jothilakshmi

DESIGNATION: Reader

DATE:

R. JOTHI LAKSHMI, M.Sc.,(N)Ph.D.,
Associate Professor
Sacred Heart Nursing College
MADURAI - 20

APPENDIX- IV

Informed Consent Form

ஒப்புதல் அறிக்கை

பெயர்: தேதி:

எனக்கு இந்த ஆய்வைப் பற்றிய முழு விவரம் விளக்கமாக எடுத்துரைகப்பட்டது. இந்த ஆய்வில் பங்கு பெறுவதில் உள்ள நன்மைகள் மற்றும் தீமைகள் பற்றி நான் புரிந்து கொண்டேன். நான் இந்த ஆய்வில் தானாகவே முன்வந்து என் ..... பங்கு பெற சம்மதிக்கிறேன். மேலும் இந்த ஆய்வில் இருந்து எந்த நேரமும் விலகிக் கொள்ள முழு அனுமதி வழங்கப்பட்டுள்ளது. என் .....னுடைய சிகிக்சை ஆவணங்களைப் பார்வையிட்டு அதில் உள்ள விவரங்களை ஆய்வில் பயன்படுத்தி கொள்ள அனுமதி அளிக்கின்றேன். என் .....னுடைய பெயர் மற்றும் அடையாளங்கள் ரகசியமாக வைத்துக் கொள்ளப்படும் என்றும் எனக்கு உறுதியளிக்கப்பட்டுள்ளது.

கையொப்பம்

APPENDIX-V

Research Tool English

Section A:

DEMOGRAPHIC VARIABLES

Part I: Socio demographic variables

1. **Age of the patient in years:**

a) 3-4 ☐

b) 4-5

c) 5-6

2. **Gender of the patient:** ☐

a) Male

b) Female

3. **Residence** ☐

a) Rural

b) Urban

4. **Religion of the child**

a) Hindu ☐

b) Christian

c) Muslim

d) Others

5. **Educational status** ☐

a) Kinder garden

b) Primary

c) Not yet joined school

6. **Family member with the child during venepuncture**

a) Parents ☐

b) Grandparents

c) Others

7. Child's reaction towards health personnel in general ☐

a) Attaches to them in few minutes

b) Aggressive behavior

c) Fear and Avoidance

Part II: Clinical variables

1. Reason for venepuncture ☐

a) Investigations

b) IV administration of medicines and fluids

2. Site of venepuncture ☐

a) Upper extremities

b) Lower extremities

3. Vein inserted ☐

a) Metacarpal vein

b) Cephalic vein

c) Basilic vein

d) Cubital vein

e) Others

4. Size of the venflon ☐

a) 24

b) 22

c) 20

5. Duration of hospital stay ☐

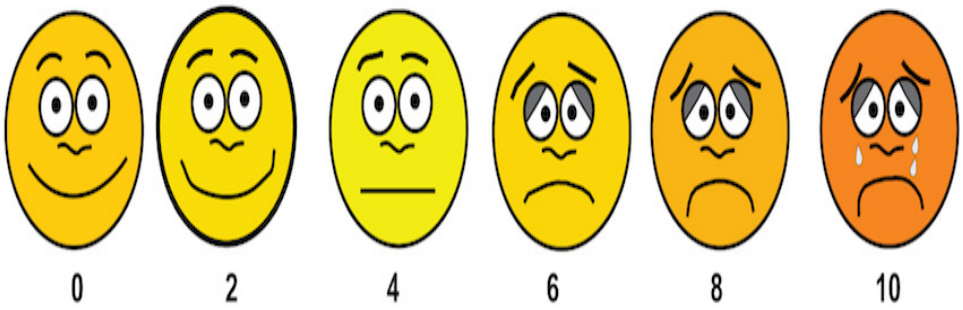
a) 1 day

b) 2 days

c) 3 days

Section B:

WONG BAKER'S PAIN ASSESSMENT SCALE



Scoring procedure and scoring key

SCORE	LEVEL OF PAIN
0	No pain
1-2	Mild pain
3-4	Moderate pain
5-6	Severe pain
7-8	Very severe pain
9-10	Worst pain

APPENDIX- VI

Research tool Tamil

பிரிவு- அ

தன்னிலை விபரக்குரிப்பு

பகுதி- அ

1. குழந்தையின் வயது வருடங்களில்

   அ) 3-4

   ஆ) 4-5

   இ) 5-6

2. குழந்தையின் பாலினம்

   அ) ஆண்

   ஆ) பெண்

3. வசிக்கும் இடம்

   அ) கிராமம்

   ஆ) நகரம்

4. குழந்தையின் மதம்

   அ) இந்து

   ஆ) கிறிஸ்தவர்

   இ) முஸ்லிம்

   ஈ) வேறு

5. குழந்தையின் கல்வி நிலை

   அ) பால்வாடி

   ஆ) முதன்மை கல்வி

இ) இன்னும் பள்ளிக்கு செல்லவில்லை

6. சிரை துளைக்கும் போது குழந்தையுடன் யார் இருந்தீர்

அ) பெற்றொர்

ஆ) தாத்தா, பாட்டி

இ) மற்றவர்

7. மருத்துவ ஊழியர்களை கண்டால் குழந்தையின் அணுகுமுறை

அ) நன்றாக பழகுதல்

ஆ) அடம் பிடித்தல்

இ) பயம்

பகுதி- ஆ

8. சிரை துளைப்பதற்கான காரணம்

அ) பரிசோதனை

ஆ) சிரை குழாய் மூலம் மருந்து திரவம் செலுத்த

9. சிரை துளைக்கும் இடம்

அ) கையில்

ஆ) காலில்

10. எந்த நரம்பில் சிரை துளைக்கபட்டது

அ) அங்கை நரம்பு

ஆ) தலைக்குரிய நரம்பு

இ) கை நரம்பு

ஈ) விலாவின் உட்பகுதி நரம்பு

உ) வேறு

11. சிரை குழாயின் அளவு

அ) 24

ஆ) 22

இ) 20

12. மருத்துவமனையில் அனுமதி ஆகிய நாட்கள்

அ) 1

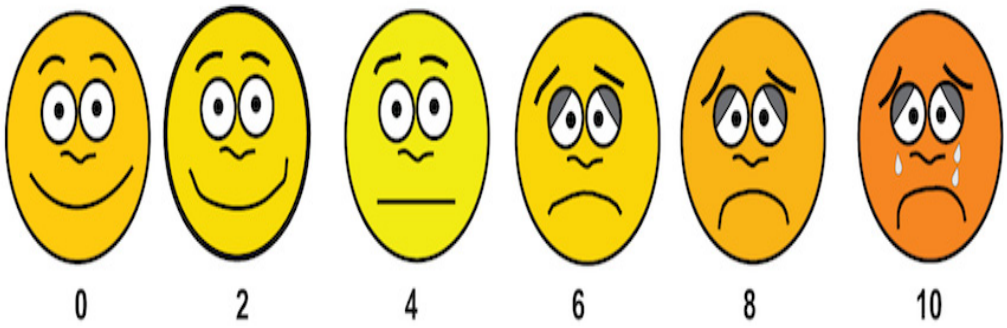
ஆ) 2

இ) 3

பிரிவு- ஆ

வாங் பேக்கரின் வலியை அளவிடும்

அளவுகோல்



மதிப்பெண் வழங்கும் முறை

மதிப்பெண்	வலியின் நிலை
0	வலியின்மை
1-3	லேசான வலி
4-6	மிதமான வலி
7-9	கடுமையான வலி
10	மோசமான வலி

APPENDIX VII

ENGLISH EDITING CERTIFICATE

CERTIFICATE FOR ENGLISH EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that

Section A; Socio-demographic data

Sectuion B; Wong Baker's pain assessment scale

Prepared by Miss. R. Abishak II Year M.Sc (N) Student College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field titled of **"EFFECTIVENESS OF CRYO THERAPY FOR 15 SECONDS VS 30 SECONDS ON PAIN DURING VENEPUNCTURE AMONG CHILDREN IN PAEDIATRIC WARD, GOVRNMENT RAJAJI HOSPITAL, MADURAI"** has been edited for English language appropriateness.

SIGNATURE:

NAME: S. BAGRUDEEN.,

DESGINATION:

INSTITUTION:

S. BAGRUDEEN, MA.,BSc.,M.Ed.,
P/T. Professor of English
(I-Year BSc Nursing)
Madurai Medical College
Madurai - 625020.

APPENDIX VII

TAMIL EDITING CERTIFICATE

CERTIFICATE OF TAMIL EDITING

TO WHOM SO EVER IT MAY CONCERN

This is to certify that the tool,

Section A: Socio-demographic data

Section B: Wong Baker's pain assessment scale

Prepared by Miss.R.Abishak II Year M.Sc (N) student, College of Nursing, Madurai Medical College, Madurai, who has undertaken the study field titled of **"EFFECTIVENESS OF CRYOTHERAPY FOR 15 SECONDS VS 30 SECONDS ON PAIN DURING VENEPUNCTURE AMONG CHILDREN IN PAEDIATRIC WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI."** has been edited for Tamil language appropriateness.

SIGNATURE: : அ. ராம.

NAME: : அ. இராமசாமி

DESIGNATION: அ. இராமசாமி எம்.ஏ., எம்.பில்., பி.எட்.
முதுகலை ஆசிரியர் (தமிழ்)
அரசு மகளிர் மேனிலைப்பள்ளி,
சங்கராபுரம் - 606 401.

INSTITUTION:

APPENDIX IX

PHOTOS